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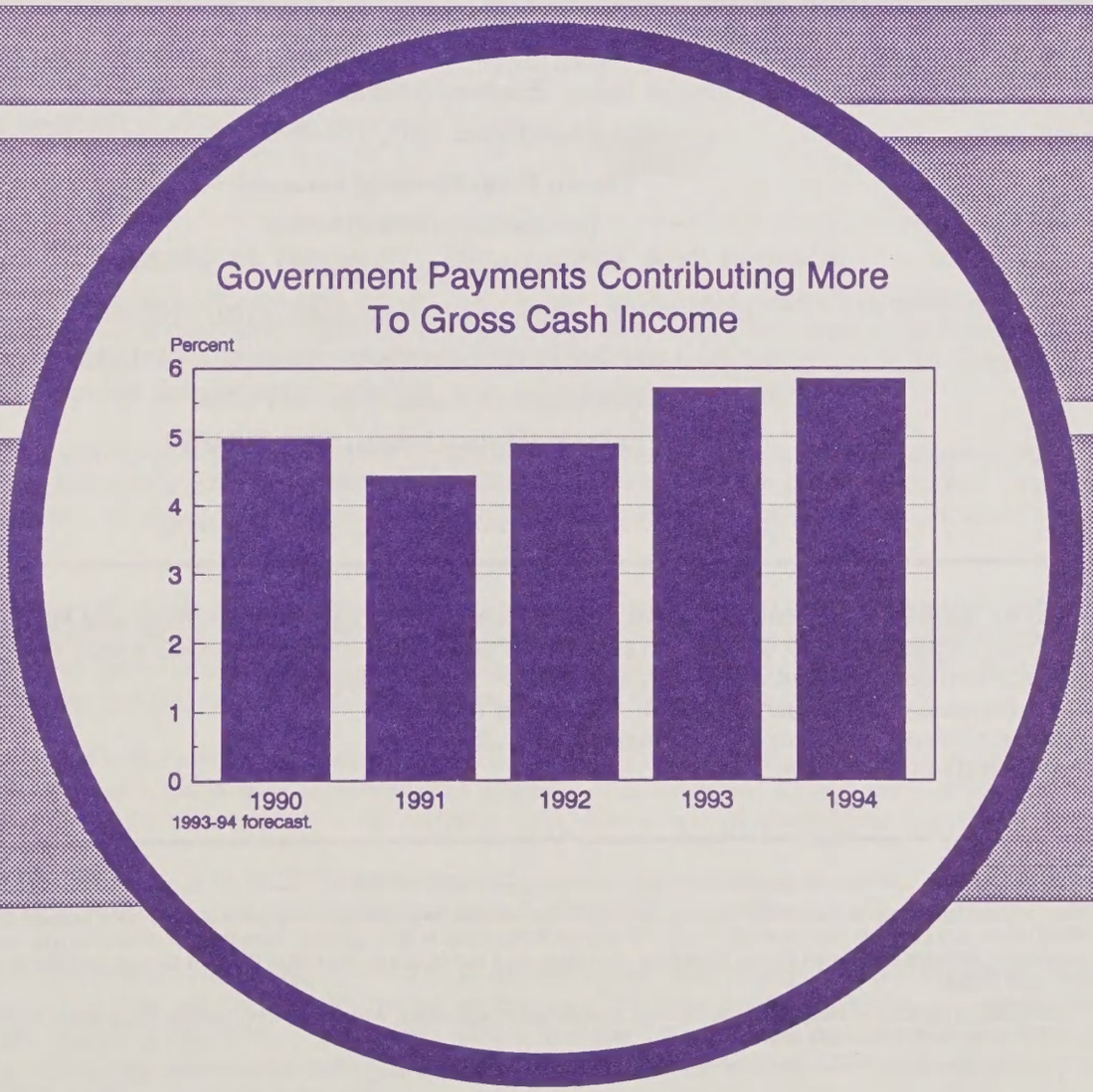
Situation and Outlook Report



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Summary

Cash Incomes Steady Next Year, But Farm Incomes To Rise

Farmers' net cash income for 1994 is expected to range between $55 and $62 billion, compared with the $59 billion forecast for 1993. Net farm income, however, should rebound from its 1993 drop. Inventory adjustments for 1994 could add $2-$6 billion to farm income. If this occurs, net farm income could average $47-$54 billion, matching or exceeding 1992's record $48.6 billion.

The structure and composition of farming through the rest of the decade is expected to be similar to that of today. Off-farm sources will continue to provide the major portion of the average household's income. Total household income for 1993 is forecast steady to down 1 percent from 1992's $40,068, but is expected to rise in 1994.

Receipts for all crops, except cotton and tobacco, are expected to rise in 1994. Food grain receipts will be up, largely due to strong rice prices. Feed grain receipts, led by corn, are also forecast up.

On the livestock side, total receipts may fall slightly. Red meat receipts are expected to be steady to slightly higher. After dropping in 1992, red meat prices recovered in 1993. For 1994, cattle prices could fall slightly, but hog prices are forecast up. Milk prices are forecast down nearly $1 per cwt in 1994, more than offsetting an expected increase in output.

Wheat and feed grain payments are forecast down for '94. Disaster payments will play a major role in determining the level of total payments. Disaster payments totaled nearly $1 billion in 1993 with another $2 billion authorized for flood and drought relief. Most of this $2 billion should be paid in 1994. Direct payments of $8-$12 billion forecast for 1994 will continue to provide 4-6 percent of gross cash income.

Cash expenses for 1994 are forecast at $130-$137 billion, up only 2-3 percent from 1993. Feed prices are rising due to this year's short crops. Livestock numbers are also rising, which will generate increased feed expenses. Partially offsetting higher feed expenses will be lower feeder livestock prices. Expenses for most other inputs are forecast up, including interest expenses which had been falling in recent years.

Most farmers entered 1993 in relatively sound financial condition. Fewer than 16 percent of commercial operations in the Midwest flood area began the year with debt/asset ratios over 40 percent. This suggests that, if they can find a willing credit source, most Midwest farmers directly affected by the floods should be able to borrow against the equity in their farms.

Glossary of Terms In Farm Income And Finance

Net cash income--is the difference between cash receipts, farm related income, and direct Government payments and cash expenses. This cash-based concept measures the total income farmers receive in a given year, regardless of the year in which the marketed output was produced. It indicates the availability of funds to cover cash operating costs, finance capital investments and savings, service debts, maintain living standards, and pay taxes.

Net farm income--is the difference between gross farm income and total expenses. This accrual-based concept measures the profit or loss associated with a given year's production. Additions to inventories are treated as income. Nonmoney items such as depreciation, the consumption of farm-grown food, and the net imputed rental value of operator dwellings are included.

Net cash flow--is the sum of: gross cash income, the change in loans outstanding, net rent to nonoperator landlords, and the net change in farmers' currency and demand deposits; minus gross cash expenses and gross capital expenditures. This financial indicator measures cash available to farm operators and landlords in a given year. It indicates the ability to meet current obligations and provide for family living expenses, and to undertake investments.

Debt/asset ratio--measures both proportional owner equity in the farm and the financial risk exposure of the operation (the extent to which the farm's assets have been borrowed against). It is calculated as total debt outstanding as of December 31, divided by the farmer's estimate of the current market value of owned assets of the farm business.

Equity level--measures net worth. It is the hypothetical balance that would remain from the sale of assets and paying off existing debt. It is calculated as total operator assets minus operator debt outstanding.

Farm operator household income--The income received by all members of the principal operator's household from farm and off-farm sources. The farm portion includes the net income received from the farm business, net income from another farm business, income from rental of land, wages paid to household members by the farm business, and other farm-related income. Off-farm income consists of money received from wages and salaries, off-farm businesses, interest and dividends, Social Security, and all other sources.

Cash Incomes Expected To Change Little in 1994

Carryover of corn and soybeans should be small next year. Strong crop prices will bolster crop cash receipts, but weak milk prices will dampen livestock receipts.

The first forecasts for 1994 indicate steady to slightly increasing gross cash income. If 1994/95 crop yields return to trend levels, crop cash receipts could rise 2-7 percent. Livestock receipts will likely be down, due in large part to lower milk prices. The overall effect will be total gross cash receipts of $172-$180 billion, comparable to 5 percent above 1993.

Crop and Livestock Receipts To Continue Strong

With the exception of cotton and tobacco, all crop receipts may be higher in 1994. Food grain receipts are forecast up 7-9 percent. Percentage wise, rice receipts could rise the most. The opening of the Japanese market to U.S. and world rice is expected to nearly double prices in the first half of 1994. Wheat receipts are expected to rise about 1 percent. Feed grain receipts, led by corn, are forecast up 10-15 percent. Fruits, vegetables, and greenhouse/nursery products will continue strong.

On the livestock side, red meat receipts are expected to be steady to rising slightly. After dropping in 1992, red meats made a dramatic recovery in 1993 and could rise again in 1994. Poultry and egg receipts rose nearly 10 percent in 1993, but could slide 1-2 percent in 1994. Milk prices are forecast down nearly $1 per cwt for 1994, more than offsetting an expected increase in production.

Deficiency Payments Likely To Fall

Feed grain payments are forecast down 20-30 percent in 1994 while wheat payments may decline 4-5 percent. Total program payments are forecast down more than 20 percent. Disaster payments will play a major role in 1994. Some $500 million were paid out in the first half of 1993 for previous years' claims. Flood and drought relief for this year's crops was originally allocated at $2.45 billion. However, disaster payments for 1993 crop losses of $400-$500 million will probably be disbursed in calendar 1993 and the rest next year. Most of the disaster payments can be expected to go to cash grain farms in the western Corn Belt. Direct payments of $8-$12 billion forecast for 1994 will continue to provide 4-6 percent of gross cash income.

Expenses Continue Moderate Increase

Cash expenses for 1994 are forecast at $130-$137 billion, up only 2-3 percent from 1993. The short 1993/94 feed grain crop will likely raise feed prices. Cattle, hog, and broiler numbers are also forecast to rise next year, raising feed expenses. Partially offsetting higher feed expenses will be lower prices for feeder livestock. Expenses for most other inputs are forecast up 1-5 percent. Interest expenses are also expected up, reversing the downward trend of the past several years. Interest rates are expected to increase slightly in 1994, which, with higher expected debt, will raise interest expenses 5-7 percent.

With 1994 gross cash income forecast steady to up 3 percent, increased expenses will leave net cash income of $55-$62 billion, compared with 1993's forecast of $59 billion. Net farm income, however, should rebound from its 1993 drop. While 1993 adjustments to inventories were negative, positive inventory adjustments for 1994 could add $2-$6 billion to farm income. If this occurs, net farm income could average $47-$54 billion, matching or exceeding 1992's record $48.6 billion. Given the expected low ending stocks for corn and soybeans, markets are likely to be very volatile during the coming year.

Total 1993 U.S. Cash Incomes Up

Preliminary 1993 production and price data point to higher cash incomes than in 1992. Several factors explain why this is possible despite lower production.

- Higher prices brought on by the floods and drought are benefiting producers with crops to sell. U.S. crop cash receipts for 1993 are forecast down only 1-3 percent, because January through August sales of last year's crops offset lower receipts from this year's crops. Livestock receipts are forecast up due to strong cattle, hog, and broiler prices.

- Government payments for 1993 are up nearly 20 percent. Most direct Government program payments to feed grain producers are made during the first half of the year. Feed grain payments have nearly doubled and $1 billion in disaster aid (including payments for previous years' disasters) have been or will soon be disbursed.

- Cash expenses for 1993 are forecast up only 1-2 percent, about the same percentage increase as gross cash income. This will result in U.S. net cash income of around $59 billion, 2-4 percent higher than in 1992.

- The value of 1993 inventory adjustments could be reduced by $3 billion due to the flood and drought impacts on corn and soybeans. Net farm income for 1993 is forecast at $44 billion, down nearly 10 percent from 1992.

First Forecasts of '93 and '94 Household Income Available

Average farm operator household income for 1992 was $40,068, with approximately 11 percent coming from farming

activities. Farm household income for 1993 is forecast steady to down 1 percent from 1992, but is expected to rise in 1994 as the general economy improves and more jobs are created.

For the past 6 months, ERS has been refining methods and data sources for estimating the average income to farm operator households. We have waited until a consistent historical data series was developed before forecasting the farm and off-farm components of this important financial indicator. The forecast of the farm portion of operator household income is based on the short-term farm sector income forecasts, adjusted for the share of income received by operator households and the forecast number of farms. Off-farm income forecasts are based on projections of the wage compensation index for non-farm employment since approximately three-fourths of off-farm income comes from wages or salaries. Off-farm income is expected to remain the dominant component of farm operator household income. ERS analysts will monitor changes in the rural economy and the number of employed workers per farm household to accurately estimate the future economic well-being of farm operators and their families.

Figure 1
Net Incomes Expected Strong in '94

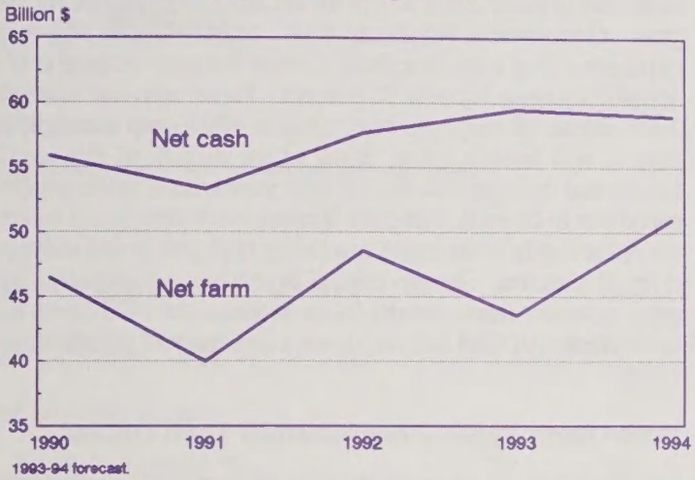


Figure 2
Expenses Moderate

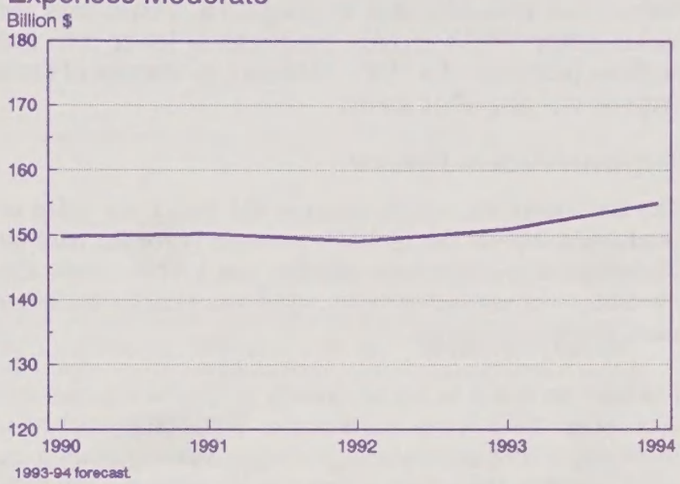


Figure 3
Major Crop Receipts Strong

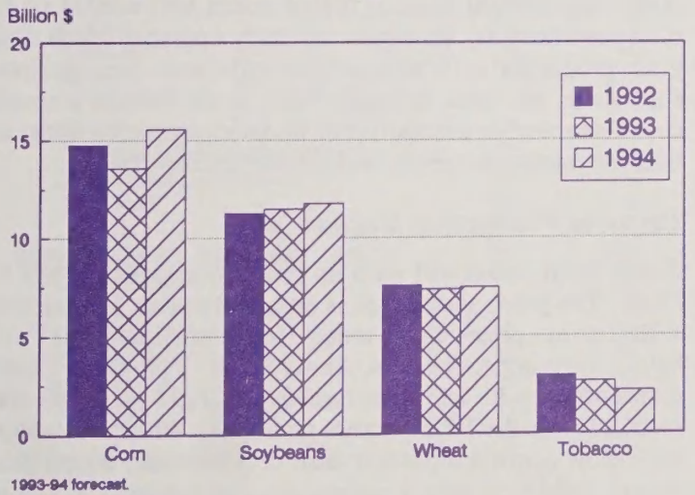
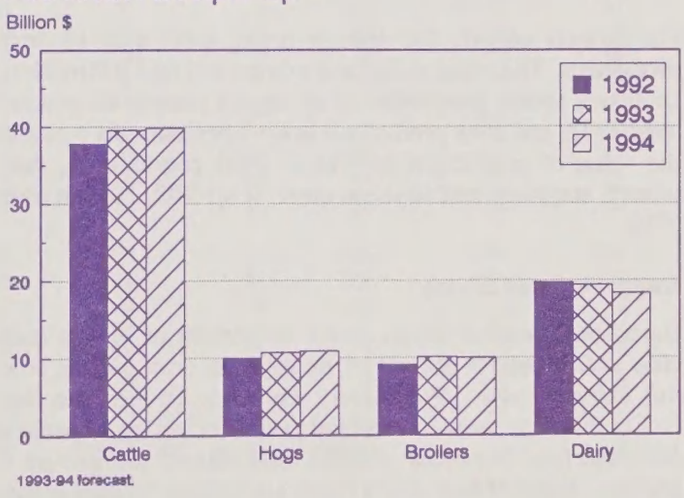


Figure 4
Red Meat Receipts Up



Main Weather Effects Regionally Specific in 1993

Most of the effects of the floods and drought will be very localized. Midwest net incomes will be most affected, particularly for cash grain farms.

U.S. harvested corn acreage was down 12.5 percent from 1992, while soybean acreage fell 3.7 percent. These reduced acreages will have a major impact on cash grain farms in the affected regions, especially given the preharvest costs that farmers had invested in their growing crops. Fewer acres and yields below 1992's records contribute to lower corn and soybean production for 1993. However, production of these crops is still near 1991 levels.

Regional Effects Evident

Net farm incomes, which measure the year's net value of production, should fall in 1993, particularly for the hard-hit Midwest and in comparison with last year's record crops. On the other hand, net cash incomes could rise, even for the States most affected by floods.

National estimates do not adequately reflect the regional impacts of the 1993 floods and drought. While crop production in the major corn and soybean producing States is down from 1992's records, the impact is severe in the western Corn Belt. The value of 1993 major field crops is down an estimated $2.0 billion in Iowa and $1.1 billion in Minnesota. As a consequence of the drought, the expected value of production for peanuts, cotton, corn, soybeans, and tobacco in Georgia and the Carolinas is down $580 million from 1992.

For farmers outside the disaster areas, 1993 may be very productive. The value of Indiana's crops was up $300 million. In Texas, cotton production is up approximately 60 percent over 1992, and corn production is up 7 percent. As a result, the value of production for Texas' 1993 cotton, corn, rice, peanut, sorghum, and soybean crops is up $300 million over 1992.

Iowa--A Case Study

Based on historical trends about 40 percent of Iowa's corn crop and about 50 percent of its soybean crop will be sold this calendar year. Preliminary estimates through the first half of this year show Iowa's feed grain receipts up 10 percent from the first 6 months of 1992, and oilseed receipts up 4 percent. Sales of last year's crops are helping to ease losses in sales expected for the first 4 months of the 1993/94 marketing year. Livestock receipts for the first 6 months of 1993 are up over 5 percent.

Iowa's crop receipts may be down 3 percent from 1992, if crops marketed in the last two quarters of 1993 bring the average U.S. price and that return is added to receipts from January through June. Stronger U.S. livestock prices are expected to raise Iowa livestock receipts 4-6 percent for the year. Government payments could nearly double and with expenses rising only marginally, Iowa net cash income could actually increase by over 20 percent. Those who had sizeable 1992 stocks of crops or who escaped 1993 crop damage, of course, will benefit most. Most of the effects of this year's floods and drought will be felt next year with a much smaller carryover to be sold. Net cash income estimates do not reflect the reduction in inventories caused by high prices and reduced crop production. Incorporating inventory adjustments and other noncash items results in an estimate of 1993 Iowa net farm income of $1.4 billion, down more than 40 percent from 1992.

Some Farm Types Affected More Than Others

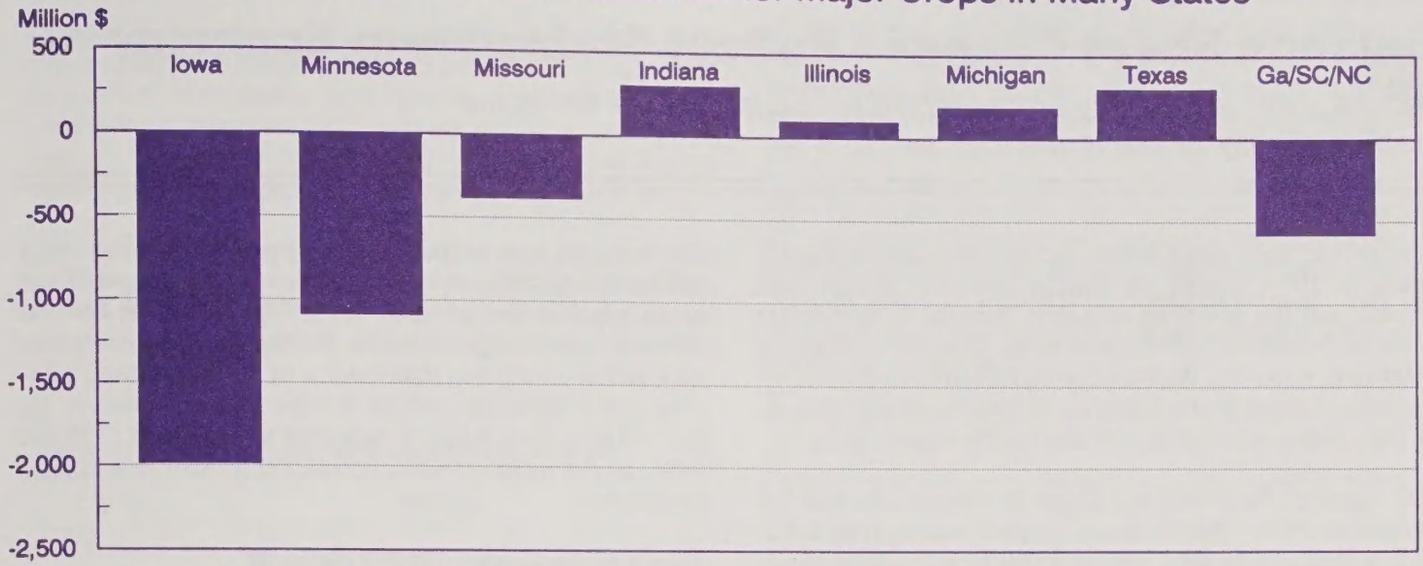
Besides location, incomes by type of farm will likely show considerable variation this year. Cash grain farms will be directly impacted by lower production, and hog and dairy operations will see higher feed costs. The Southeastern and Mid-Atlantic drought affects tobacco farm incomes. Higher crop receipts (primarily 1992/93 corn and soybeans) due to flood- and drought-induced higher prices will mainly go to cash grain farmers. Red meat and dairy operations with cash grain production will also receive additional cash receipts. Cash grain, red meat, and dairy farms in the disaster counties could also receive the additional disaster payments. Most of these payments, however, will be disbursed in 1994.

Costs of Production More in '94

Rising input prices will push up production costs slightly in 1994. The prices paid index is expected to rise 1-2 percent, with fertilizer prices up the most. Higher fertilizer prices will have a large impact on corn, a heavy user of nitrogen. Some corn farmers will use more fertilizer in 1994 as production recovers from the 1993 weather problems. While most crops may show about a 2-percent cash cost increase, cotton producers could well see a 4-percent rise due primarily to higher ginning expenses associated with increased yields.

Figure 5

1993 Disasters Reduce Value of Production for Major Crops in Many States



Losses and gains are in comparison to 1992.

Table 1—Cash costs of production for major field crops, 1994

Expense item	Corn	Sorghum	Barley	Oats	Wheat	Rice	Soybeans	Cotton
Per planted acre:					Dollars			
Total cash costs 1/	189	100	87	68	75	401	114	340
Variable cash costs	142	77	61	49	54	338	75	281
Seed	21	5	6	7	6	20	13	13
Fertilizer	47	19	16	13	16	36	10	37
Chemicals	24	11	8	1	6	49	24	50
Custom operations	9	4	3	6	4	37	4	17
Fuel, lube, and electricity	19	15	9	8	9	68	9	34
Repairs	14	12	9	8	7	33	10	25
Hired labor	8	8	7	5	6	43	6	41
Drying	0	0	0	0	0	43	0	0
Ginning	0	0	0	0	0	0	0	58
Other	*	*	2	0	*	9	*	5
Fixed cash costs	47	23	25	20	21	63	39	59
General farm overhead	11	5	7	3	5	24	9	17
Taxes and insurance	20	10	9	13	10	14	16	22
Interest	16	8	10	3	6	26	14	20
Economic (full ownership) costs	305	177	167	147	146	564	204	459
Variable cash costs	141	77	61	49	54	338	75	281
General farm overhead	11	5	7	3	5	24	9	17
Taxes and insurance	20	10	9	13	10	14	16	22
Capital replacement	29	26	31	27	11	51	21	48
Operating capital	3	2	1	*	1	7	1	5
Other nonland capital	11	13	9	9	13	26	11	17
Land	64	26	35	28	41	75	51	40
Unpaid labor	25	19	14	18	10	29	20	29
Percentage change from 1993:					Percent			
Total cash costs	2.4	2.1	2.2	2.1	2.3	1.5	1.6	3.6
Variable cash costs	1.9	1.6	1.5	1.7	1.8	.9	.5	3.5
Fixed cash costs	3.7	3.8	3.9	2.9	3.5	4.3	3.8	3.8
Economic (full ownership) costs	2.2	.4	1.0	1.1	.7	1.5	0.1	3.8

Totals may not add due to rounding. * = less than 50 cents.
1/ Forecasts are as of 11/16/93 and exclude direct effects of Government programs.

Balance Sheet Changes Reflect Stable Farm Economy

Assets, debt, and equity are expected to rise in nominal terms but decline slightly in real terms.

Nationwide, farm sector wealth will probably not rise significantly in 1994, despite the healthy levels of current farm income and the potential long-term benefits to agriculture from less restrictive international trade. In a relatively strong 1994 farm economy, the financial performance outlook is for improved current profitability, but limited farm asset growth, slightly rising debt levels, and marginally higher equity.

The value of farm business assets is expected to rise 2-3 percent in 1994. This increase, coupled with a projected 1- to 2-percent rise in debt, indicates that farm business equity should increase by about 3 percent. While this moderate equity gain reflects a relatively stable farm economy, it is projected to mirror the general price level rise of about 3 percent. As a result, real (1987$) equity is forecast to be unchanged during 1994, although asset and debt levels will experience slight real declines.

Even within the Midwest flood area, farm balance sheets should not suffer dramatically. Fewer than 16 percent of commercial farm operations (sales greater than $40,000) in the affected States began 1993 with debt-to-asset ratios greater than 40 percent. This suggests that even if they do not receive disaster assistance, most area farmers directly affected by the flood should be able to borrow against the equity in their farm businesses to cover essential expenditures.

Within the Midwest flood region, the percentage of commercial farms entering 1993 with a debt-to-asset ratio greater than 40 percent varied from under 9 percent in Nebraska to over 20 percent in South Dakota and Minnesota. In Iowa, the State most adversely affected by the flood, about 13 percent of commercial farm operations began 1993 in this relatively high debt-to-asset ratio class.

Farm Asset Values To Increase Slightly

The high net cash income in 1993 is being generated by farm business assets valued at $878 billion at year-end. The value of farm business assets declined by almost $260 billion from 1980 through the end of 1986. As a result of gradually rising asset values since then, almost $154 billion of this nominal decline will be recovered by the end of 1993. Farm business debt dropped dramatically during 1985-87. During 1988-93, total farm business debt at year-end has been within the range of $137-143 billion, suggesting that farm debt has stabilized at a level that provides for farmers' credit needs without unduly taxing the cash flows of their operations. The overall improvement in the farm sector balance sheet is indicated by the decline of the farm business debt-to-asset ratio from 23 percent in 1985 to 16 percent in 1993.

The value of farm business assets is projected to rise $16.5 billion during 1993, an increase of less than 2 percent. Farm assets are forecast to rise to $895-$905 billion in 1994, as values increase 2-3 percent. The sustained moderate increases may reflect a long-run stabilization of the agricultural economy, and a favorable outlook for the future. However, the real value of farm assets is projected to decline in 1993 and 1994, as the inflation rate exceeds the growth rate in farm asset values.

Real Estate Values Up 2-3 Percent

The value of farm real estate is projected to rise slightly more than 2 percent in 1993. The relatively stable value of farmland suggests that high cash income levels, even in the presence of favorable interest rates, have not dramatically increased farmers' desire to bid up land prices in attempting to expand operations. Real estate appreciation in 1994 is expected to be 2-3 percent.

Nonreal Estate Assets Also Gain

Nonreal estate asset values are forecast to rise by about $7 billion in 1994, exceeding 1993's gain of $1.6 billion. Livestock inventories are expected to account for over 40 percent of this increase, because rising cattle inventories are not expected to depress year-end prices. Cattle account for almost 92 percent of the value of all year-end livestock inventories.

The value of machinery on farms is expected to rise slightly in 1994, as purchases of tractors and combines are expected to increase in both 1993 and 1994. Sales of tractors over 100 horsepower are projected to be up 22 percent in 1993, but slow to less than 6 percent in 1994. Farm business financial assets are projected to increase. The inventory value of stored crops may be steady or rise slightly, while the value of purchased input inventories remains constant or increases modestly.

Farm Sector Financial Performance

Relatively high rates of return on farm equity and assets are expected to continue through 1994. The rate of return on equity from current income is expected to be 3-4 percent.

Other measures of financial performance suggest a stable to modestly improving farm sector during 1994. Farmers need a smaller portion of their earnings for debt repayment. In 1983, principal and interest payments took 28 percent of gross cash income. With lower debt and more favorable interest rates, less than 14 percent will go for those obligations in 1994. After peaking at 23 percent in 1985, the aggregate farm debt-to-asset ratio has stabilized in the 16- to 17-percent range.

Farm Debt Low Relative to Gross Cash Income

Comparing farm debt with gross cash income gives an indication of the farm sector's ability to service debt from current cash flows. Historically, farm debt has been less than gross cash income, but from 1977 through 1987 the reverse was true. In 1994 farm debt is expected to be 75 percent of gross cash income, about the same level that it was in 1973.

Comparisons of aggregate gross income and debt can mask problems arising due to the diversity of financial conditions of individual farm operations. Over half of all farms owe no debt, but much of the debt owed is by those operations that could have problems repaying it. Entering 1993, 28 percent of operations owed debt greater than their gross cash income, and they owed 61 percent of all debt owed by farms with sales greater than $40,000. About 30 percent of Midwest farmers had debt greater than their reported gross cash income, and these owed about 67 percent of all debt.

Despite slightly higher interest expenses in 1994, farmers should have adequate net cash income to fully meet their debt repayment obligations. It appears that many farm operators are positioned to profitably use additional credit. Net cash income from farm operations is at a level that could support additional farm debt.

Table 2—Farm financial performance measures 1/

Item	1980-84	1985-86	1987-91	1992-93F	1994F
			Percent		
Profitability:					
Return on equity	0.1	1.9	3.5	3.0	3 to 4
Liquidity:					
Debt service	27	24	17	14	13 to 14
Solvency:					
Debt-to-asset	19.7	22.3	17.1	16.2	15 to 17
Financial efficiency:					
Interest-to-gross cash farm income	13.0	10.8	7.4	5.7	5 to 6

F = forecast.
1/ Excludes households.

Table 3—Farm balance sheet components in nominal and real dollars, 1990-94

Item	1990	1991	1992P	1993F	1994F
			Dollars		
Current dollars:					
Assets	848.3	842.2	861.5	878	895 to 905
Debt	137.4	138.9	139.3	143	142 to 148
Equity	710.9	703.3	722.2	735	750 to 760
Deflated dollars (1987):					
Assets	749.4	715.5	710.8	706	700 to 710
Debt	121.4	118.0	114.9	115	110 to 116
Equity	628.0	597.5	595.9	591	585 to 595

P = preliminary; F = forecast.

Farm Debt Expected To Rise, But Credit Supplies Ample

Farm debt may rise 1-2 percent in 1994. Lenders' earnings are strengthening as the financial health of borrowers improves.

Farm credit markets appear to have ample cash available to fund farmers' expected credit needs in 1994. Lenders, operating in a vigilant regulatory environment, have placed more rigorous qualifying requirements on loan applicants. While farmers and lenders are relying more on repayment ability as the main criterion in credit decisions, they are also examining more closely the profitability of individual credit-financed investment projects. In this more cautious financial environment, farmers and their lenders continue to show restraint in incurring debt to purchase land and replace machinery and equipment.

Farm debt is anticipated to increase 1-2 percent during 1994, following a 2-percent rise in 1993, marking the fourth consecutive year of increases. The slight rise in debt in 1990 ended a 5-year run of annual reductions. Stable land values and healthy cash income of borrowers are easing lenders' concern with potential loan defaults arising from land value declines.

Along with debt increasing in 1994, the loan portfolios of individual lenders is changing dramatically. The traditional institutional farm lenders, the Farm Credit System (FCS) and commercial banks, are reporting strong earnings because of the improved financial health of their borrowers.

Farm Credit System Profitability Grows

FCS institutions have reported higher earnings throughout 1992 and 1993, due mainly to an improved net interest margin. The higher margin resulted from the normal refinancing of maturing debt, as previously issued higher cost debt was replaced with lower cost debt. FCS is also benefiting from improved loan portfolio quality. While its member institutions continue to recruit quality borrowers, total FCS farm lending should increase only slightly in 1994, as both farm mortgage and nonreal estate lending are expected to rise. FCS is expected to hold about 25 percent of all farm debt at the end of 1994.

Banks Continue To Gain Market Share

Commercial banks report adequate credit available for qualified borrowers and lending should rise by about $1.8 billion in 1994. Rural Midwest banks appear to be in sound financial condition, and are working with flood victims in developing mutually agreed to repayment plans for existing loans. By year-end 1994, banks may hold over 39 percent of all farm debt.

Farm nonreal estate debt held by banks is expected to rise over 7 percent in 1993, while loans secured by farmland increase almost 6 percent. The rise in nonreal estate loans is mainly due to an unusually high rate of loan growth in the third quarter, because of delayed demand for production loans by farmers in disaster areas. These producers may not have needed financing earlier in the year.

Alternatively, less early-season bank lending may have been due to the rise in credit availability from input suppliers. Banks are reporting more renewals and extensions this year, indicating the seasonal pattern of fourth quarter paydowns in nonreal estate debt will likely be lower than normal in 1993.

Farmers Home Administration Direct Lending Reduced

Total Farmers Home Administration (FmHA) farm debt could fall by another $1 billion to $1.5 billion in 1994 despite an anticipated rise in new issuance of FmHA direct emergency loans authorized in the summer of 1993 for assistance to farmers in disaster areas. Between September 30, 1992, and September 30, 1993, emergency loans outstanding declined by over $650 million. Through September 1993, only $58.6 million of an authorized $115 million in Direct Emergency Disaster funds had been distributed. An additional $162.3 million are available under a separate disaster loan program as credit for qualifying borrowers.

As FmHA shifts emphasis from direct lending to guaranteeing loans made by other lenders, it continues to work through its portfolio of problem direct loans. On September 30, 1993, 38 percent of FmHA farmer program debt was owed by delinquent borrowers. Delinquent principal and interest payments totalled over $4.1 billion. Future FmHA direct lending activities will be affected by recent legislation, which targets assistance to beginning and minority farmers. However, this legislation also limits these borrowers' eligibility to 10 years for FmHA direct loans, and 15 years for combined FmHA direct and guaranteed loans.

Farmer Mac Evolves Slowly

The Agricultural Credit Act of 1987 authorized Farmer Mac, a secondary mortgage market for farm real estate loans. The purpose of such a market is to provide additional liquidity to farm mortgage lending. The response to Farmer Mac has been less than enthusiastic--the first pool of loans was not completed until December 1991. By the end of 1993, only 4 Farmer Mac pools, totalling less than $700 million have been formed. Farmer Mac pools have been formed primarily by life insurance companies packaging existing qualifying loans.

To become a major factor in the agricultural credit market, Farmer Mac will need to rely on creation of pools of new loans from a broader range of lenders. In the current environment of low interest rates, low loan-to-deposit ratios at

banks, and favorable interest rate margins in the Farm Credit Systems, few creditors have an incentive to sell loans of the quality required for Farmer Mac pooling. Farmer Mac loans are included as "individuals and others" debt in the farm sector accounts.

Nontraditional Lenders Increase Activity

Finance companies, operating as subsidiaries of farm machinery manufacturers, grain elevators, cotton gins, livestock marketing associations, and seed, feed, fertilizer, chemical, and petroleum suppliers, are growing in importance as providers of short-term agricultural credit. While many input suppliers began these credit operations as a means of enhancing product sales, these units are emerging as viable profit centers for their parent organizations. To an extent, input suppliers may be providing credit to marginal producers who have been unable to obtain financing through traditional loan sources. These input suppliers may encounter collection difficulties as a result of less rigorous credit qualifying standards.

Table 4--Farm debt outstanding, by lender, December 31, 1988-94

Lender	1988	1989	1990	1991	1992P	1993F	1994F
	Million dollars					Billion dollars	
Real estate debt	77,634	75,351	74,137	74,597	75,639	77	75 to 80
Federal Land Banks	28,372	26,674	25,719	25,160	25,271	25	24 to 26
Farmers Home Administration	8,953	8,130	7,576	7,001	6,361	6	5 to 6
Life insurance companies	9,018	9,045	9,631	9,494	8,718	9	8 to 10
Commercial banks	14,397	15,551	16,158	17,315	18,659	20	19 to 21
CCC storage facility	21	12	7	4	2	*	*
Individuals and others	16,873	15,939	15,047	15,623	16,628	17	17 to 18
Nonreal estate debt	61,734	61,881	63,230	64,274	63,631	66	65 to 70
Commercial banks	28,309	29,243	31,267	32,854	32,912	35	35 to 37
PCAs and FICBs	8,766	9,544	9,848	10,222	10,346	10	10 to 12
Farmers Home Administration	12,899	10,843	9,374	8,213	7,143	6	5 to 6
Individuals and others	11,760	12,250	12,740	12,985	13,230	14	14 to 16
Total debt (excluding CCC)	139,368	137,231	137,367	138,871	139,270	143	142 to 148
Farm Credit System	37,138	36,218	35,567	35,382	35,616	36	35 to 38
Farmers Home Administration	21,852	18,974	16,950	15,213	13,504	12	10 to 12
Commercial banks	42,706	44,795	47,425	50,169	51,571	55	55 to 59
Life insurance companies	9,018	9,045	9,631	9,494	8,718	9	8 to 10
Individuals and others	28,654	28,201	27,794	28,612	29,860	31	31 to 34

P = preliminary; F = forecast. * = less than $500 million.

Economic Growth Slowly Accelerated In Second-Half 1993

Lower interest rates boosted economic growth in 1993. Continuation of low inflation and low interest rates in 1994 should moderate increases in agricultural production expenses.

The economy continued to strengthen slowly in the late summer and early fall. Real GDP grew at an annual rate of 2.8 percent in the third quarter, up from 1.9 percent in the second quarter. Moreover, the private spending components of GDP (except exports of goods and services) universally indicated broad-based improvement in the economy. The impact of high consumer and corporate debt burdens along with tight credit availability that had constrained growth in the early 1990's appear to be easing.

Real fixed business investment spending, which has been the recovery's primary source of strength, grew at an annual rate of over 6 percent in the third quarter. Business inventories increased by less than $1 billion leading to lower inventory-to-sales ratios at both the wholesale and retail levels. Spurred by the lowest mortgage rates in over 20 years, residential construction grew at an annual rate of approximately 10 percent.

Despite continued slow growth in jobs and consumer disposable income, consumer spending increased more than 4 percent in the third quarter after increasing by roughly 2 percent in the first half of the year. While the trade balance continued to deteriorate in the third quarter, the rate of deterioration slowed markedly. Exports of goods and services declined, primarily reflecting little if any overall foreign growth. Federal Government spending fell, reflecting a reduction in defense spending.

Low Interest Rates and Strong Corporate Profits Boosting Business Investment Spending

Probably the greatest factor boosting economic growth has been the decline in interest rates, especially long-term ones. This situation has boosted economic growth through a number of channels. In the business investment area, lower rates have reduced the cost of borrowing. From mid-October 1992 through mid-October 1993, high-grade corporate bond yields fell by over 130 basis points. Lower long-term bond yields have cut the cost of equity funds for business investment as well, encouraging additional investment spending. Lower interest rates have increased corporate profits, thus providing more internal funds for investment.

Looking only at nonfinancial corporations, third-quarter 1993 profits were 15 percent above year-earlier levels. Corporate profits are an important source of investment funds for firms (especially smaller ones) that have limited access to debt and equity markets as well as for firms that prefer internal financing of investment projects. Stronger corporate profits have also strengthened stock prices by improving the outlook for future corporate profits and higher dividends.

Increased Consumer Spending Strengthens the Outlook

Consumer spending increased 4.2 percent in the third quarter after increasing 3.5 percent in the second quarter. The faster third quarter growth was accomplished through a lower savings rate at the same time that growth in personal disposable income slowed. The savings rate fell to 3.7 percent in the third quarter after averaging 4.2 in the first half of 1993. Consumer spending has been boosted by lower interest rates that reduced the cost of new debt and existing credit. People have more money to spend because of the refinancing of home mortgages and lower interest rates on revolving credit balances.

Consumer spending has also been strengthened by improved consumer wealth and liquidity. In the 1980's, consumer debt increased at an annual rate of 10 percent as individuals borrowed to support a high level of consumption relative to current disposable income. In response to a more uncertain economic outlook in the early 1990's, consumers increased their overall liquidity by increasing their savings rate and their holdings of financial assets. During the economic recovery period from the second quarter of 1991 through the second quarter of 1993, consumer debt grew at an annual rate of only 3.5 percent while consumer financial assets rose 7.8 percent. The improved consumer financial position and a slowly improving job market reduced the need to save because of uncertainty and increased overall consumer confidence and spending.

One indicator of improving consumer confidence was the increased growth of consumer debt in the third quarter of 1993. Consumer installment borrowing (nonmortgage debt to be repaid in two or more payments), which grew at an annual rate of 4.0 in the first two quarters, grew 6.2 percent in the third quarter. Another indicator was the increased sales of new single family homes. Single family housing starts increased at a 10-percent annual rate in the 3-month period ending in October.

The low 3.7-percent savings rate is not expected to fall further for any sustained period. From 1980 through 1992, it averaged 6.1 percent. Furthermore, while the growth rate in real personal disposable income is expected to accelerate in 1994, it is likely to remain below the growth rate of real GDP.

Therefore, consumer spending is expected to increase only moderately in 1994 relative to 1993.

Deficit in Net Exports Grew in Third Quarter

The U.S. trade balance widened to $80 billion in the third quarter 1993 as exports fell by nearly $2 billion while imports grew by roughly $3 billion. In the first half of 1993, real GDP growth in Germany and France was negative and under 0.5 percent in Japan. Modest improvement in foreign economic growth should raise demand for U.S. goods in 1994.

Modestly Higher Growth and Low Inflation Expected in 1994

Economic growth should accelerate slightly in 1994. Consumer confidence and spending are expected to increase slowly with the improving employment and personal income situation. In September and October, monthly nonagricultural job growth averaged nearly 170,000 after averaging less than 83,000 in June, July, and August. From August through October, manufacturing employment stabilized after falling earlier in the recovery. In October, the average workweek of manufacturing employees reached 41.6 hours, matching the record set in 1966. Reflecting the higher utilization of existing labor and greater expected demand for goods and services, employment growth in 1994 is expected to be above 1993's rate of 1.7 percent. However, the unemployment rate will remain high relative to recent recoveries, indicating significant slack in labor markets.

Business investment should remain strong in 1994, reflecting low interest rates and strong corporate profits. Rising utilization of plant capacity should further boost business investment in 1994. Industrial capacity utilization rose sharply in October to 82.4 percent. In comparison, capacity utilization was 81 percent in December 1992. Commercial bank loans should become more available in 1994, reflecting continuing improvement in nonfinancial corporate and commercial bank balance sheets.

Inflation should remain low. Inflation at the finished good producer price level averaged only 0.8 percent over the first three quarters of 1993. Crude oil prices fell by 3.5 percent from December 1992 through October 1993. Consumer prices increased at an annual rate of 2.7 percent in the first three quarters of 1993. Continued slack in labor markets, a continuing cyclical rebound in worker productivity, strong foreign competition, and sharply lower crude oil prices in 1993 should keep inflation low in 1994. Strong business investment in 1993 and 1994 should further strengthen productivity and keep inflationary pressures low.

From mid-October through late November, long-term interest rates increased by 30 to 50 basis points while short-term interest rates increased by 10 to 15 basis points. Additional interest rate increases are likely to be fairly modest in 1994 because inflation is expected to remain low. A small increase in short-term interest rates is probable, as somewhat higher growth and investment spending increase short-term credit and money demand. Long-term interest rates may rise slightly if the growth rate of business capital investment spending increases and if short-term interest rates increase modestly. Any increase in U.S. long-term interest rates is likely to be tempered by expected further declines in competing foreign bond yields. Foreign bond yields are likely to continue to fall, reflecting expected continued slow foreign growth and easier foreign monetary policy.

Implications for Agriculture

Overall demand for domestic agricultural production should benefit from the expected slightly higher domestic real growth in 1994. Agricultural production expense increases should continue to be low in an environment of low inflation and low interest rates. Furthermore, increases in foreign demand for agricultural products will continue to be constrained by slow foreign growth. Increases in interest rates charged by commercial banks on agricultural loans are expected to be quite small. Agricultural loan rates, especially at smaller banks, are largely determined by the overall bank cost of funds. Smaller banks are heavily dependent on small consumer deposits for loan funds. Interest rates on small consumer time deposits have declined throughout 1993 and are expected to increase only very modestly in 1994.

Figure ■
Personal Savings Rate

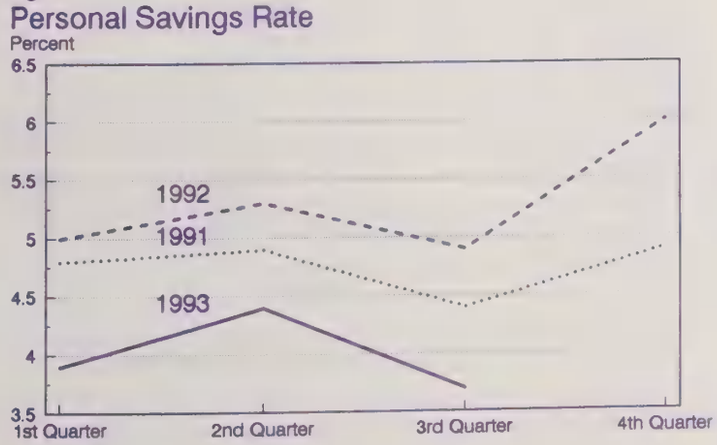
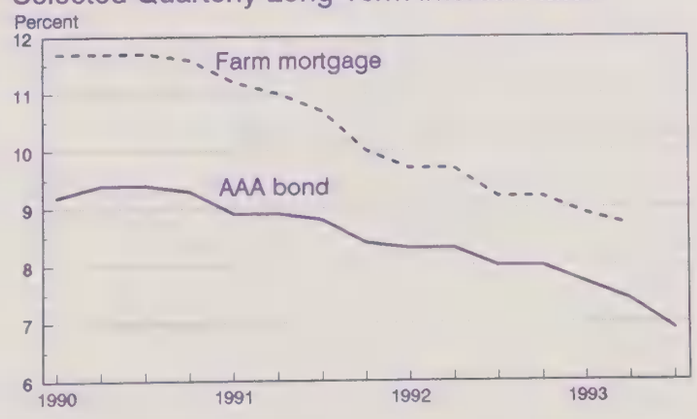


Figure 7
Selected Quarterly Long-Term Interest Rates



Farm Business and Household Characteristics Vary by County Type

by Robert A. Hoppe [1]

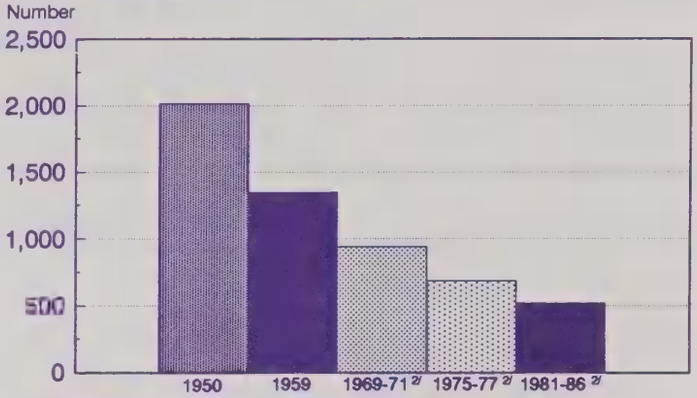
Abstract: The number of counties economically dependent on farming declined over the years. But agriculture did not disappear from most counties that are no longer farming-dependent. Farming is still significant in many of those counties.

Keywords: Farm operator households, farming-dependent counties, rural development, farming areas, off-farm income

In the late 1930's, farm productivity began to increase after stagnating since 1900 (3). Growing productivity led to farm consolidation, declining farm numbers, and excess capacity in agriculture (10). Farmers and farm laborers left farming, encouraged by higher nonfarm wages. By 1990, only 2.7 percent of U.S. employment was in production agriculture, compared with 12.2 percent in 1950 and 24 percent in 1935.

Not surprisingly, the number of areas economically dependent on farming also declined. Over 2,000 counties (of a U.S. total of 3,070) were farming-dependent in 1950, relying on farming for at least 20 percent of their total earnings (figure A-1). [2] By 1986, the number had dropped to 521.

Figure A-1
Farming-Dependent Counties [1/]



1/ At least 20 percent of earnings from farming.
2/ Calculated over multiple years to minimize the effects of adverse weather or markets.
Note: Total number of U.S. counties is 3,070. Sources: 5,8.

Yet, agriculture did not disappear from the majority of counties that are no longer farming-dependent. Many counties are still important to U.S. agriculture because they produce a major portion of the Nation's total farm output. In this article, these are labeled "major farming (MF)" counties. Most farms, however, are in a residual group of counties that is neither farming-dependent nor MF.

This article examines farm businesses and farm operator households in the three groups of counties: farming-dependent, MF, and residual. The characteristics of farms and farm operator households differ among the three groups, and understanding these differences adds insights into ways of improving operator households' well-being. The groups' economic and population characteristics are also examined briefly. This information helps explain differences in farms and operator households among the three groups.

Defining the County Groups

Farming-dependent counties as of 1986 are discussed in this article. [3] These counties received at least 20 percent of total earnings from farming during 1981-86. (See box.)

However, the importance of farming can be measured in ways other than by the percentage of local earnings it provides. In many counties, farm production is substantial in absolute terms, even though farming provides a relatively small share of total earnings. Thus, a second group of counties is also examined. Among the top 20 percent of U.S. counties ranked by total farm earnings, there were 434 that received less than 20 percent of their total earnings from farming during 1981-86. These are the "major farming (MF)" counties.

The MF group is important to U.S. agriculture. Although the group contained only a fourth of all U.S. farms in 1990, it had nearly a third of all commercial farms, or farms with sales of $50,000 or more (table A-1). Furthermore, nearly half of the Nation's commercial farms with sales over $500,000 were in the MF group. MF counties provided 40 percent of the 1990 value of agricultural production.

The third category is the residual group--counties that are neither farming-dependent nor MF. Farming provided less than 20 percent of local earnings in this group, and the local farming sector did not rank in the top fifth nationally. About 62 percent of all farms and 44 percent of commercial farms were in the residual group in 1990 (table A-1).

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[1] Economist, USDA, Economic Research Service, Agriculture and Rural Economy Division.

[2] Earnings, or earned income, come from work performed for others (a wage or salary job) or for oneself (self-employment).

[3] The 1986 farming-dependent county classification is the most current available. The Economic Research Service will publish an updated classification in the spring of 1994.

Table A-1—Distribution of farms and value of production, by county type, 1990

Item	Farming-dependent	Major farming	Residual	Total
		Percent		
Farms	13.2	24.6	62.2	100.0
By sales class:				
Less than $50,000	9.5	21.2	69.3	100.0
$50,000 or more 1/	22.6	33.0	44.4	100.0
$50,000 to $499,999	23.1	31.8	45.1	100.0
$500,000 or more	17.0	46.9	36.1	100.0
Value of production	19.8	40.2	40.0	100.0
Crops	19.8	47.2	33.1	100.0
Livestock	19.9	33.9	46.2	100.0

1/ Farms with gross sales of $50,000 or more are defined as commercial farms.
Source: 1990 Farm Costs and Returns Survey, all versions.

Figure A–2
Farming areas of the United States

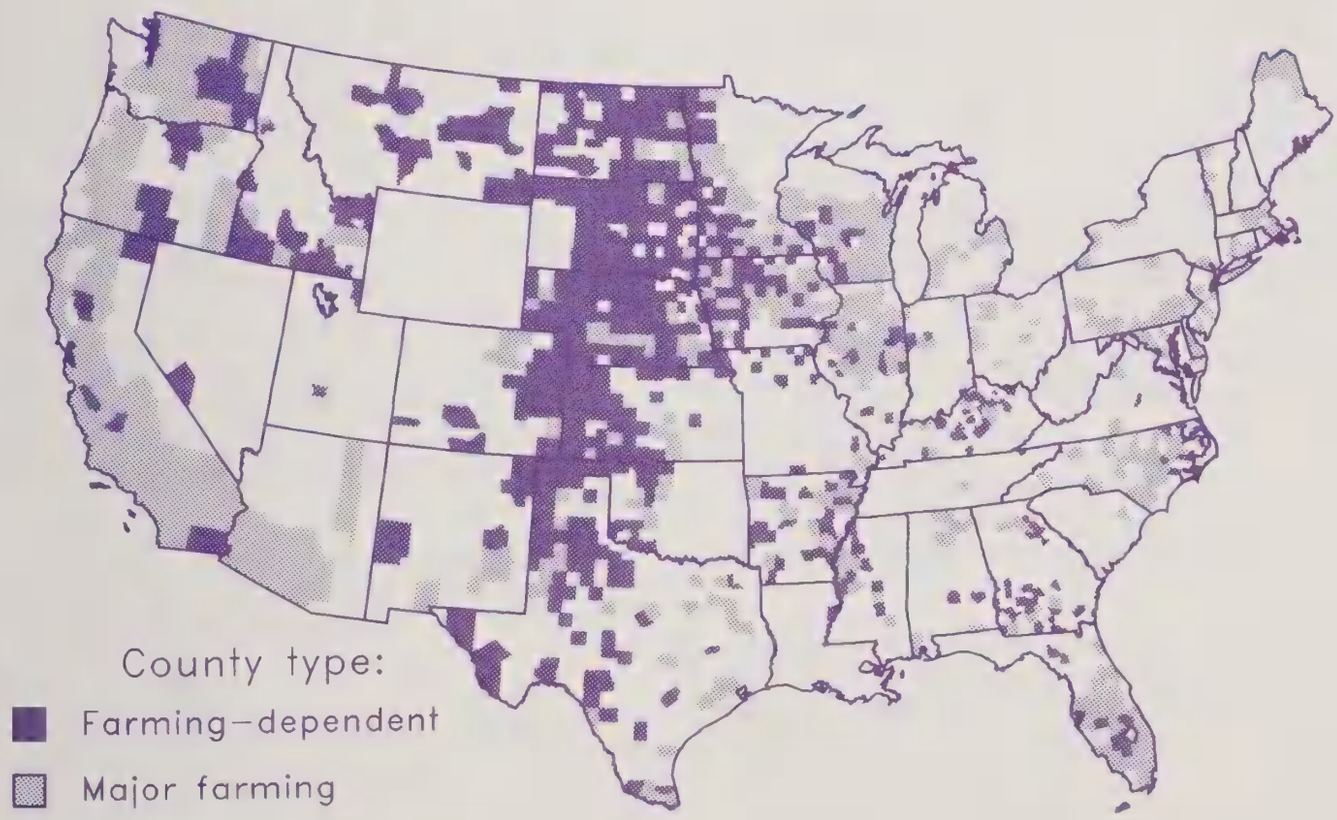

Table A-2—Measures of population concentration, by county type, 1990

Item	Farming-dependent	Major farming	Residual	Total
		Thousands		
Population 1/	4,371	88,520	154,161	247,052
		Number		
Counties 2/	521	434	2,115	3,070
Metro	9	188	515	712
Nonmetro	512	246	1,600	2,358
		Persons per sq. mi.		
Population density 1/	8.5	168.1	80.3	83.5

1/ The data source is the 1990 Census of Population. 2/ Metro counties contain a population concentration of 50,000 or more, or they are part of a group of counties containing a population concentration that large. The remaining counties are nonmetro.

The Setting: County Characteristics

Farming-dependent counties are most heavily concentrated in the western portion of the Midwest and the South (figure A-2). Many MF counties are also located in the Midwest, particularly in the eastern portion of the region. The residual group is heavily concentrated in the South; half of the farms in the residual group are in the South.

Identifying Farming-Dependent Counties

ERS identified the farming-dependent counties by using local area personal income data from the Bureau of Economic Analysis, Department of Commerce. Farming-dependent counties received at least 20 percent of total earnings from farming in 1981, 1982, 1984, 1985, and 1986. In other words:

$$\frac{\text{farm earnings in 1981+1982+1984+1985+1986}}{\text{total earnings in 1981+1982+1984+1985+1986}} \times 100\%$$

had to be at least 20 percent. The year 1983 was an unusually poor year for farm income and was dropped from the calculation. A 5-year average was used to minimize the effects of annual fluctuations in weather or markets.

Contrary to the standard ERS classification, both metropolitan (metro) and nonmetropolitan (nonmetro) counties could be farming-dependent in this article. Generally, metro counties contain a population concentration of 50,000 or more, or they are part of a group of counties containing a population concentration that large (2). The remaining counties are nonmetro. The researchers who determined the original list of farming-dependent counties excluded metro counties because the goal was to develop a classification scheme only for nonmetro counties (5). This article examines the characteristics of farms and farm operator households, even if they are in a metro area.

Virtually all the farming-dependent counties were nonmetro (table A-2). [4] However, substantial portions of the MF and residual counties were metro, and a metro location can affect farming. Farms in metro areas tend to have higher per acre farmland values and produce high-value products (1).

Population density was highest for the MF group, reflecting some very densely settled metro counties. Nevertheless, even nonmetro MF counties tended to rank high in population density, particularly when compared with farming-dependent counties. Population density in the nonmetro MF group was 41 persons per square mile, about 5 times higher than in farming-dependent counties.

Local economies in the farming-dependent group and the nonmetro portions of the other two groups performed poorly during the 1980's. As a rule, nonmetro counties did not fare as well during the 1980's as metro counties, whether performance is measured in terms of income, employment, or unemployment statistics (4). The causes of the relatively poor performance in nonmetro counties include a long-term decline in employment in natural resource industries--especially agriculture--and increasing integration of the U.S. and world economies.

Economic performance was especially poor in farming-dependent counties. During the 1980's, about 60 percent of these counties lost employment, and 80 percent lost population.

[4] Metro counties contain a population concentration of 50,000 or more, or they are part of a group of counties containing a population concentration that large (2). The remaining counties are nonmetro.

Farming-Dependent Group

Farms in the farming-dependent group tended to be large, whether size is measured in terms of sales or acres operated (table A-3). Nearly half of the farms in this group were commercial farms. Farm size in the group averaged 1,083 acres, compared with 588 acres for the Nation.

Another indicator of farm size is the value of land and buildings used in farm operations. The average value of land and buildings in the farming-dependent group was about the same as the national average. On a per-owned-acre basis, however, the value of land and buildings in this group was about half the national average. Low population density in farming-dependent counties means less competition for land and therefore lower land values.

Low population density also may help explain why the farming-dependent group specialized in cash grains more heavily than the other groups. Cash grain farming is land intensive and more feasible in areas with lower population densities.

The percentages of full owners and part owners were similar in the farming-dependent group. In other words, farms were about as likely to use both their own and rented land as to use only their own land. Farm operations often expand by renting land to avoid increasing their debt and tying up capital (9).

Farm Costs and Returns Survey

The 1990 Farm Costs and Returns Survey (FCRS) was used to examine the characteristics of farm businesses and farm operator households in this article. Differences in FCRS-based estimates discussed in the text are significant at the 90 percent level.

"Farm" is used interchangeably with "farm business," and "farm firm." Farm operator households are referred to as "farm operator households," or "operator households," not "farms." Farms organized as sole proprietorships, partnerships, or family corporations are included in the household computer files. All other farms, organized as nonfamily corporations or cooperatives, are excluded. The operator household concept is not relevant for the 1 percent of farm businesses excluded from the household files. Operator household income is defined to be consistent with the cash income concept used by the Census Bureau.

Table A-3—Characteristics of farms, by county type, 1990 1/

Item	Farming-dependent	Major farming	Residual	Total
		Number		
Farms	231,361	430,208	1,090,556	1,752,125
		Percent		
Sales class:				
$50,000 or more 1/	48.7	38.2	20.3	28.4
$20,000 to $49,999	14.9	14.3	11.9	12.9
$10,000 to $19,999	9.1	9.4	13.4	11.9
$9,999 or less	27.3	38.1	54.4	46.8
		Acres		
Average acres operated	1,083	425	547	588
		Dollars		
Average value of land and buildings:				
Per farm	284,669	431,974	237,672	291,586
Per acre owned	581	2,175	949	1,083
		Percent		
Type of farm:				
Cash grain	34.7	19.8	15.7	19.2
Other field crops	12.0	10.1	13.1	12.2
Fruits, tree nuts, vegetables, nursery, and greenhouse	1.6	17.6	4.4	7.3
Cattle, hogs, sheep	35.8	28.2	47.1	41.0
Dairy	5.3	12.0	6.1	7.5
Other livestock	10.6	12.2	13.6	12.9
Tenure:				
Full tenant	14.7	12.1	5.3	8.2
Part owner	44.5	34.4	36.9	37.3
Full owner	40.8	53.4	57.8	54.5

1/ Farms with gross sales $50,000 or more are defined as commercial farms.
Source: 1990 Farm Costs and Returns Survey, all versions.

Table A-4—Characteristics of farm operators, by county type, 1990

Item	Farming-dependent	Major farming	Residual	Total
		Number		
Farm operators and households	229,811	424,762	1,083,446	1,738,019
		Years		
Average age of operator	51	51	53	52
		Percent		
Main occupation of operator:				
Farm/ranch work	71.9	60.8	50.7	56.0
Other	28.1	39.2	49.3	44.0
		Hours		
Average yearly hours of farm work by operator	2,035	1,797	1,475	1,628
		Percent		
Hours worked on farm per year by operator:				
Less than 500	14.5	22.2	21.3	20.6
500 to 999	11.2	14.2	21.3	18.3
1,000 to 1,999	24.0	22.2	28.3	26.3
2,000 or more	50.3	41.4	29.0	34.9

Source: 1990 Farm Costs and Returns Survey, all versions.

Examining the characteristics of farm operators and their households gives a more complete picture of the farming-dependent counties. Average age of operators in the farming-dependent counties was 51 years, slightly less than the national average for farm operators (table A-4). This is a reflection of the commercial-sized farm businesses in the group, since operators of larger farms tend to be younger.

Farm operators in farming-dependent counties were most likely to report farming as their major occupation, had the highest average hours worked on farm, and were the most likely to work 2,000 hours or more per year on farm. The labor requirements to operate large farms limit the number of hours available to operators for working off the farm. At the same time, declining numbers of nonfarm jobs in many farming-dependent counties may limit off-farm employment opportunities.

Operator household income in the group averaged $40,400, about the same as for all U.S. operator households (table A-5). Households in the farming-dependent counties, however, averaged more income from farming and less from off-farm sources than their counterparts located elsewhere. The importance of farming to household income in this group is understandable, given the large percentages of operators who reported farming as their main occupation or who worked on their farms more than 2,000 hours per year.

Yet, operator households in the farming-dependent group relied on off-farm sources for over 60 percent of their income. Off-farm wages and salaries provided 32 percent of household income. Furthermore, 61 percent of households received less income from their farm business than from off-farm sources.

Major Farming Group

Farms in the MF group were about equally divided between metro (51 percent) and nonmetro (49 percent) counties. In some respects, farms in nonmetro MF counties were more like farms in the farming-dependent counties than farms in metro MF counties. For example, an estimated 38 percent of all MF farms were of commercial size, a smaller percentage than the 49 percent for the farming-dependent group (table A-3). About 45 percent of farms in nonmetro MF counties, however, were commercial farms, a figure close to that for the farming-dependent counties. The corresponding figure for farms in metro MF counties was much smaller, 31 percent.

In other respects, however, metro and nonmetro farms in the MF group had more in common with each other. Regardless of metro or nonmetro location, for example, farms tended to have fewer acres in the MF group than in the farming-dependent group.

The highest value of land and buildings per farm was in the MF group. As expected, farms had a higher average value in the metro counties of the group ($588,600) than in the nonmetro counties ($267,400). Value per farm for nonmetro MF farms was about the same as in the farming-dependent group. Value per acre for nonmetro MF farms, however, was $1,094, compared with $581 for farms in farming-dependent counties. At least some of the high value of MF farms reflects the more concentrated population in the MF counties, in both metro and nonmetro counties. Competing uses for the land increase the value.

Competing uses for land may also encourage operators to specialize in enterprises requiring less land, which would help

Table A-5—Financial characteristics of farm operator households, by county type, 1990

Item	Farming-dependent	Major farming	Residual	Total
		Number		
Farm operators and households	229,811	424,762	1,083,446	1,738,019
		Dollars per household		
Household income	40,413	52,624	33,370	39,007
Farm-related income	15,127	10,042	2,066	5,742
Off-farm income 1/	25,286	42,582	31,304	33,265
Wages and salaries	12,942	19,298	17,239	17,174
Interest and dividends	2,483	4,494	2,846	3,201
Other 2/	4,269	6,226	5,133	5,286
		Percent of households		
Farm income compared with off-farm income				
No off-farm income	11.0	10.0	6.8	8.1
Farm income less	60.5	71.3	81.8	76.4
Farm income equal or greater	28.5	18.7	11.4	15.5

1/ Includes off-farm business income not shown separately. 2/ Net income from estates and trusts, rental income from off-farm properties, royalties from mineral leases, retirement/disability income, annuities, alimony, regular contributions from persons not in the household, and other miscellaneous sources of income.
Source: 1990 Farm Costs and Returns Survey, all versions.

explain the smaller number of acres per farm in the MF group. MF farms were more likely to specialize in high-value fruits, tree nuts, vegetables, and nursery or green house products than farms in the other groups. Specializing in high-value crops allows farms to compete more effectively for land and labor in an urbanized setting (6).

Farms in the MF group were also more likely to specialize in dairy enterprises, which have historically located near cities to simplify getting a perishable product to market (6). A large percentage of farms specialized in high-value crops or dairy in both metro MF counties (36 percent) and nonmetro MF counties (23 percent), compared with farming-dependent counties (6.9 percent).

Compared with operators in farming-dependent counties, operators in the MF group were less likely to report farming as their major occupation and reported fewer hours of work on farm (table A-4). As before, differences between metro and nonmetro counties occurred within the MF group. Metro MF operators were less likely to report farming as their major occupation (55 percent) than nonmetro operators (67 percent). Similarly, hours worked on farm averaged 1,630 per metro operator, compared with 1,970 for nonmetro operators. The nonmetro MF figures were much closer to those for the farming-dependent group than to those for metro MF operators. This may reflect limited off-farm job opportunities in nonmetro MF counties compared with metro MF counties.

The difference in household income between the MF and farming-dependent groups was not statistically significant (table A-5). However, the MF group received a larger amount from off-farm sources and a smaller amount from farm-related sources than the farming-dependent group. As a result, operator households depended less on farming in the MF group than in the farming-dependent group. Only 19 percent of household income was farming-related in the MF group, compared with 37 percent for the farming-dependent group.

Metro operator households in the MF group, however, had higher household income and depended more on off-farm income than nonmetro households. Household income averaged an estimated $64,500 for metro households, compared with $40,300 for nonmetro households. About 90 percent of operator household income came from off-farm sources in metro MF counties, much more than the corresponding 65 percent for nonmetro MF counties.

Average household income and the percent of income from farming were similar in nonmetro MF counties and farming-dependent counties. These similarities may reflect more limited nonfarm job opportunities and the prevalence of full-time farming in both nonmetro MF and farming-dependent counties.

Residual Group

Twenty-seven percent of the farms in the residual group were in metro counties, but metro-nonmetro differences in farm and household characteristics were relatively unimportant. Substantial metro-nonmetro differences existed only for the value of land and buildings and the average number of acres operated.

Farms in residual areas tended to be small in terms of sales, with half having sales less than $10,000 (table A-3). Only 20 percent of farm businesses in the group were of commercial size. Acreage operated averaged 547 acres, slightly more than the MF average, but substantially smaller than the farming-dependent average. Metro farms in the residual groups av-

eraged 297 acres, while nonmetro farms in the group averaged 639 acres.

Value of land and buildings per farm was $237,700 in the residual group, less than the national average. The value was $299,100 in metro residual counties, about the same as the national average. Value per acre in metro residual counties was double the national average, however, reflecting the greater population density in those counties. In nonmetro residual counties, value per farm was $215,200, somewhat less than for nonmetro MF counties ($267,400) or farming-dependent counties ($284,700).

The relatively large percentage of full owners in the residual group relative to the farming-dependent group resulted from the heavy concentration of noncommercial farm businesses in the residual group. Noncommercial farms tend to own all the land they operate.

Average age of operators in the residual groups was 53, 2 years older than in the other groups (table A-4). This reflects the predominance of older operators in the South. About 54 percent of operators were at least 55 years old in southern residual counties, compared with between 41 and 43 percent in the other regions.

Part-time farming predominates in the residual group. Nearly half of the farm operators in residual counties reported a major occupation other than farming, and only 29 percent worked on their farms 2,000 hours or more per year. Heavy specialization in beef, hogs, and sheep (table A-3) helps explain the large amount of part-time farming in the residual group. This specialization category is made up largely of beef farms, which often have relatively flexible labor requirements (7) that fit well with an off-farm job. Flexible labor requirements may also make beef operations attractive to older operators phasing out of farming.

Most operator household income came from off-farm sources in the residual group (table A-5). About 82 percent of households in this group received more off-farm income than farm-related income. Wages and salaries were particularly important, with half of operator household income coming from this source, compared with a third in the other groups.

Average operator household income was lower in the residual group than in the other groups. This difference resulted, in part, from low farm-related income. Farm-related income averaged $2,100 in the residual group, compared with $15,100 in the farming-dependent group and $10,000 in the MF group.

Implications

The farm sector in the farming-dependent group is large enough to have an obvious and important local economic impact. Where farming is a relatively small portion of the local economy (as in many MF counties), the impact of local economic conditions on farming may be more important than the impact of farming on the local economy. Farming may be particularly challenging in MF counties because farms and their operators must adjust to an economically dominant nonfarm sector. For example, operators in MF counties may face competition for land and labor from the nonfarm sector.

Regardless of county group, however, many operator households depend on off-farm income. Dependence on off-farm income means that operator households have an interest in the health of the local economy, nonfarm job growth, and the level of nonfarm wages.

Despite the importance of off-farm income, it is not a panacea for farm operator households' economic well-being. Although off-farm income normally buffers operator households from problems in the farm sector, times may exist when operator households experience adverse conditions in both the farm and nonfarm economies. For example, the farm financial crisis in the early 1980's struck at the same time unemployment rates rose during the 1980 and 1981-82 recessions.

Reliance on farm commodity programs to address concerns over operator households' economic well-being can have only limited success when most farm operator household income comes from off-farm sources. In addition, not all farms produce commodities covered by the programs. The programs have the most potential for households that depend heavily on farm income and specialize in commodities covered by the programs. Hence, commodity programs are more likely to affect local economies in farming-dependent counties specializing in covered commodities.

As an alternative to commodity programs, strengthening local economies may help members of farm operator households find better off-farm jobs. Off-farm employment is a viable option for farm household members, if they are not involved heavily with the farm. Efforts to strengthen local economies could include a variety of rural economic development measures.

In some cases, increasing operator households' farm-related income may be more feasible than rural development programs. As an example, consider the counties in the residual group. Average operator household income in this group was relatively low, in part a result of low farm income on small farms. Extension programs could help part-time operators in such areas make more effective use of their farm resources, particularly where the nonfarm economy is consistently weak.

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Agricultural Adaptation to Urban Influence in U.S. Metro Counties

by Charles H. Barnard and Ralph E. Heimlich [1]

Abstract: This report compares U.S. metro and nonmetro counties on the basis of farm and farm-operator characteristics. The differences in characteristics between metro and nonmetro counties demonstrate the adaptive responses to urban influence. Farms with agricultural sales of less than $10,000 are separated in the analysis in order to highlight the characteristics of more business-oriented farms and their operators.

Keywords: Farms, financial characteristics, metro areas, urban influence

Metropolitan Statistical Areas (MSAs) defined by the Bureau of the Census now contain 16 percent of U.S. land area and 75 percent of U.S. population (Bureau of the Census). Metro areas also contain nearly one-third of all U.S. farms (1991), farms that produce a similar proportion of the value of U.S. agricultural production. But growth of metro areas alters the economic and financial structure of agriculture as traditional farms adapt to the unfamiliar metropolitan farming environment, and as new operators replace traditional farm operators.[2]

Adaptation to metro farming environments proceeds along two disparate tracks, with more farms becoming small, part-time operations and others becoming full-scale, intensive operations producing high-value crops. The set of very small farms generates returns primarily in the form of implicit recreational or residential benefits and it is unlikely that most operators of these small farms intend to develop profit-making businesses.[3] Such farms, however, can obscure the economic and financial structure of the larger, more business-oriented farms.

This article contrasts metro and nonmetro farms on the basis of various measures of economic and financial structure and on the basis of operator characteristics. Residential farms (essentially those with agricultural sales of less than $10,000) are separated in the analysis, permitting a focus on the adaptive characteristics of more business-oriented farms and their operators.[4] In addition, this article examines how both metropolitan influence and the prevalence of residential farms varies by region. Note is made of the influence that residential farms exert on aggregate statistics representing all farms.

Data and Methods

The Farm Costs and Returns Survey (FCRS) is conducted annually by the National Agricultural Statistics Service for the Economic Research Service, USDA. The FCRS provides detailed estimates of the income, expenses, and equity associated with farm operations and collects information concerning the characteristics of farm operators. The 1991 FCRS included farm operations in the 48 contiguous States that sold or normally would have sold at least $1,000 worth of agricultural products in 1991. The 1991 FCRS had 12,132 usable responses, of which 3,300 were for farms located in counties defined as Metropolitan Statistical Areas (MSA's) by the Office of Management and Budget and the Bureau of the Census in 1983. The official MSA definition, as used here, is a proxy for areas influenced by urbanization, although such areas are not necessarily completely dominated by urban land uses. Farms outside MSAs also experience some urban pressures and have some of the same opportunities as farms inside metro areas, but to a lesser extent.

For purposes of this analysis, farms were classified as residential if the market value of their 1991 production, as measured by value of products sold and net increases in inventory, was less than $10,000. Two exceptions to this criterion were used to account for farms that were not residential even if their value of production was less than $10,000. Some of these farms may have experienced substantial crop failure, which reduced production below $10,000. To account for such a possibility, farms with production value under $10,000 were reclassified as business-oriented farms if the value of their nonland assets exceeded $165,000, which is the median value of nonland assets.

Whole farms in the 10-year Conservation Reserve Program (CRP) are a second special case. These farms do not fit the residential nor the business-oriented farm profile. Cases for which the whole farm had been entered in the CRP were removed from the data set.[5] In total, 44 observations (representing 12,876 farms) were deleted: 4 from metro counties

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[1] Economists, USDA, Economic Research Service.

[2] Previous studies show that metro farms are generally smaller, produce more per acre, have more diverse enterprises, and are more focused on high-value production than nonmetro farms (4, 3). Metro farms were also found to have a generally stronger financial position than nonmetro farms (1).

[3] The implication is that these farms operate primarily as a place of residence for operators and their families, with farm income being a secondary motivation. Other motivations for small farms include their use as hobby or retirement farms, again, with profit being a secondary or nonexistent goal.

[4] The term "residential farm" is defined to include recreational farms also.

[5] Some farms retain control of small acreage associated with the farmstead and may even have a small amount of agricultural sales, thus hindering precise identification of whole-farm CRP cases. Consequently, some farms that are essentially whole-farm CRP may remain in the data set.

and 40 from nonmetro counties. In all but one case, the farms would otherwise have been classified as residential.

The contrast between residential and business-oriented farms is often sharper than between metro and nonmetro farms. As a consequence, the prevalence of residential farms is an important factor in explaining differences in averages between farms in metro and nonmetro areas. Therefore, statistics for residential farms are separated to allow a clearer comparison of business-oriented farms in metro and nonmetro areas. Residential farms generally have similar characteristics regardless of location.

Characteristics of Metro Farms and Their Operators

More than 627,000 farms are located in metro areas, accounting for 30 percent of the 2.1 million U.S. farms, and producing 33 percent of crop and livestock sales. The proportion of metro farms varies among regions, depending on the degree of urbanization and the size of counties (figure B-1). More than half the farms in the Northeast and Pacific regions are in metro areas. In contrast, less than 15 percent of farms are located in metro areas in the Northern Plains and Mountain regions.

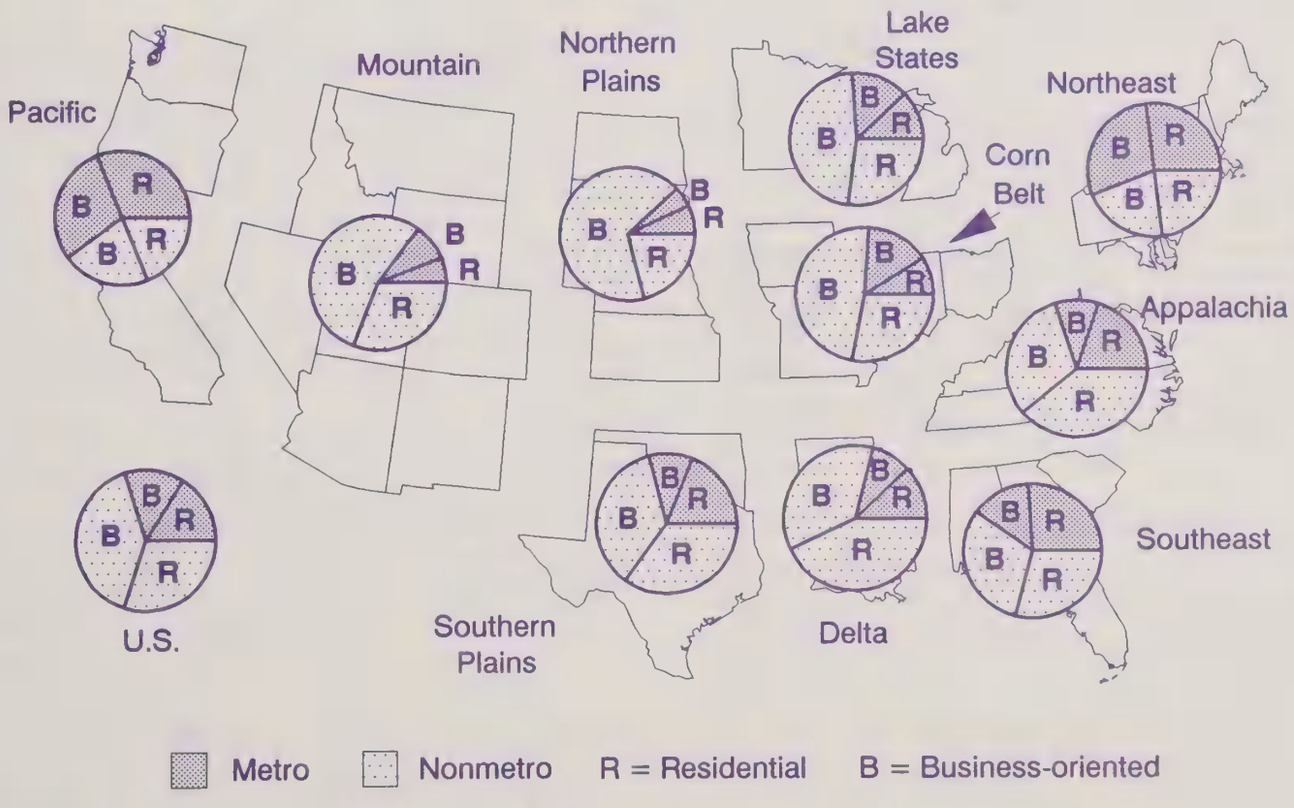
The prevalence of residential farms also varies between metro and nonmetro areas and among regions (figure B-1). Nationally, residential farms constitute 54 percent of metro farms and 43 percent of nonmetro farms. About two-thirds of metro farms in the Southern Plains, Southeast, and Appalachian regions are classified as residential, possibly because of the popularity of these areas for retirement. The Corn Belt has the smallest proportion of metro residential farms--38 percent. In nonmetro regions, the percentages of residential farms are lower, ranging from 56 percent in Appalachia to 24 percent in the Northern Plains. Metro areas are composed of greater proportions of residential farms than are nonmetro areas in all regions except the Northeast, Corn Belt, and Delta, where the proportions are essentially equal between metro and nonmetro areas.

Dependence on Farming

Metro and nonmetro areas exhibit sharp contrasts with regard to dependence on farming (table B-1). First, a substantially higher percentage of operators in metro areas list nonfarm primary occupations (29 percent versus 21 percent), with much of the difference being attributable to differences between residential and business-oriented farms. Sixty-six percent of operators of residential farms in metro areas list nonfarm primary occupations, while only 15 percent of business-oriented operators in metro areas list nonfarm primary

Figure B-1

Distribution of residential and business-oriented farms in metro and nonmetro counties, by region, 1991



Source: 1991 Farm Costs and Returns Survey, USDA

occupations. A similar pattern of difference exists between residential and business-oriented farms in nonmetro areas.

The weekly hours of labor that the operator and unpaid family members apply to the farm operation also can be considered an indicator of dependence on farming. On this basis, metro and nonmetro farms each show an average of about 35 hours of combined family labor per week (table B-1). For business-oriented farms, however, combined family labor averages 55 hours per week in metro areas but only 49 hours in nonmetro areas. The difference is attributable in large measure to the hours of unpaid labor by members of the operator's family. The average number of unpaid hours by member of the operator's family is 3 times larger on business-oriented farms in metro areas than on business-oriented farms in nonmetro areas.

The difference between residential and business-oriented farms is even greater. Labor hours are nearly 3 times greater for business-oriented farms than for residential farms, regardless of whether the farms are metro or nonmetro.

Sources of Income

Farm Income

Average sales of agricultural products on metro farms (at $61,200) are 15 percent greater than for nonmetro farms (table B-2). This result is heavily influenced by the large number of residential farms that average less than $3,000 of sales per farm. The metro average disguises the relatively large amount of sales from business-oriented farms in metro areas, whose average sales ($128,900) are more than double the metro average. Business-oriented farms in metro areas have more

Table B-1—Dependence on farming, by farm type, 1991

Operator characteristic	Residential		Business-oriented		All	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
			Percent of operators within type			
Nonfarm occupation	66	61	15	13	29	21
			Hours			
Hours per week:						
Operator labor	16	16	41	44	27	32
Unpaid labor	2	2	14	5	8	4
Total labor	18	18	55	49	35	36

Table B-2—Farm business income, by farm type, 1991

Income	Residential		Business-oriented		All	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
			Dollars			
Per farm:						
Gross cash farm income	3,315	4,540	139,363	102,596	66,518	60,758
Farm marketings	2,497	2,766	128,883	90,508	61,212	53,071
Government payments	253	767	3,219	5,542	1,631	3,505
Other farm income	564	1,007	7,261	6,546	3,675	4,182
Cash expenses	8,254	6,585	116,176	84,092	58,391	51,021
Net cash income	-4,939	-2,045	23,187	18,504	8,127	9,736
Net farm income	-2,122	13	21,777	16,877	8,981	9,681
			Percent			
Percent of gross cash income per farm:						
Gross cash farm income	100	100	100	100	100	100
Farm marketings	75	61	93	88	92	87
Government payments	8	17	2	6	2	6
Other farm income	17	22	5	6	6	7
Cash expenses	249	145	83	82	88	84
Net cash income	-149	-45	17	18	12	16
Net farm income	-64	0	16	16	14	16

Table B-3—Sources of income for principal-operator household, by farm type, 1991

Income	Residential		Business-oriented		All	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
			Dollars			
Per farm:						
Off-farm income	45,755	32,504	35,597	24,084	41,060	27,693
Wages and salaries	21,633	17,321	15,243	11,322	18,680	13,892
Off-farm business	14,361	6,461	11,357	6,139	12,973	6,277
Interest and dividends	3,144	2,468	3,602	2,756	3,356	2,633
Other	6,617	6,254	5,395	3,866	6,052	4,890
Farm business income	-5,029	-1,892	12,382	10,103	3,017	4,962
Household income 1/	40,726	30,613	47,979	34,187	44,078	32,655
Percent of household income:			Percent			
Off-farm income	112	106	74	70	93	85
Wages and salaries	53	57	32	33	42	43
Off-farm business	35	21	23	18	29	19
Interest and dividends	8	8	8	[illegible]	[illegible]	[illegible]
Other	16	20	11	11	14	15
Farm business income	-12	-6	26	30	7	15
Household income	100	100	100	100	100	100

1/ The household income figures reported here are based on a subset of the 1991 FCRS dataset (see text), and consequently, do not match USDA's official estimates of 1991 farm family income.

than 42 percent larger sales than business-oriented farms in nonmetro areas.

On average, metro farms receive Government payments half as large as nonmetro farms. But, when adjustment is made for the actual number of farms that participate in government programs, the amount of government payments per farm is similar in metro and nonmetro areas. In general, this reflects participation rates in nonmetro areas that are roughly double those in metro areas. It may also indicate that a higher percentage of metro farm operators commit part of their acreage to the CRP. Part-farm participation in the CRP would tend to increase government payments per farm, while simultaneously lowering sales, making it more likely that a farm would be classified as residential.

Net farm income, representing return to the operator's capital, labor, and management is about 8 percent higher in nonmetro areas than in metro areas (table B-2). But, again, residential farms distort the metro and nonmetro averages. If residential farms are removed from the comparison, the results show that the average net farm income of business-oriented farms is larger in metro areas than in nonmetro areas.

Household Income

The average household income of principal-operator families is $11,400 higher in metro areas ($44,100) than in nonmetro areas ($32,700) (table B-3). Further, higher average household income for metro counties holds true whether the comparison is for residential or business-oriented farms.

The alternative comparison (between farm types) indicates that families on business-oriented farms have higher average household incomes than families on residential farms, regardless of whether the comparison is for metro or nonmetro locations.

The importance of each source of household income also varies between metro and nonmetro farms. Farm business income accounts for only a small percentage of household income, but it is a larger percentage for nonmetro households (15 percent versus 7 percent). But, large differences between farm types disguise the importance of farm income to business-oriented farms. For business-oriented farms, farm business income accounts for 26-30 percent of household income. In contrast, residential farms incur farm business income losses. Residential farms depend on substantially higher off-farm incomes, particularly from wages and salaries, to subsidize monetary losses from their farm businesses.

Farm Enterprises

In general, metro farms take advantage of their proximity to consumer markets by specializing in farm products that have a high value per acre and are relatively perishable (table B-4). Metro areas favor crop production over livestock production by a margin of 65 percent to 35 percent. Moreover, metro production is relatively concentrated in high-value crops, including vegetables, fruits, nuts, and nursery/greenhouse products. Sales of these high-value crops constitute 45 percent of commodity sales from metro areas, in contrast to 15 percent in nonmetro areas.

Table B-4—Sales of farm commodities, by farm type, 1991

Commodity	Residential		Business-oriented		All	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
	Percent of sales					
Crops	40	33	66	46	65	46
Field	22	27	20	31	20	31
Corn	4	5	6	11	6	11
Soybeans	4	5	5	8	5	8
Wheat	1	5	2	5	2	5
Rye, etc.	0	0	0	0	0	0
Other	13	12	7	7	7	7
High-value	18	6	46	15	45	15
Vegetables	2	2	4	2	4	2
Fruits and nuts	4	1	6	3	6	3
Nursery and greenhouse	6	1	14	2	14	2
Contract crops	6	2	22	8	21	8
Livestock	60	67	34	54	35	54
Breeding stock	7	7	2	4	3	4
Cattle, hogs, and sheep	47	57	12	31	13	32
Poultry	0	0	2	1	2	1
Contract livestock	0	0	7	6	6	5
Other livestock	5	3	1	0	1	0
Dairy products	1	0	10	12	10	12
Total	100	100	100	100	100	100

Commodity production in nonmetro areas is more evenly split between crops and livestock, at 46 and 54 percent, respectively. Field crops, particularly those supported in government farm programs, are the dominant crop enterprises.

Residential farms concentrate on livestock enterprises, with the exception of dairy production. Dairy is a very small component of livestock production on residential farms, because it requires a large commitment of operator labor and capital. Even though enterprise selection on residential farms is greatly different than on business-oriented farms, residential farms have very little influence on the average distribution of sales within metro or nonmetro areas because residential farms contribute only 2 percent to total agricultural sales.

Production Expenses

Operating expenses on metro farms are larger than those on nonmetro farms, with the average for both exceeding $50,000 per farm (table B-5). The presence of numerous residential farms in metro and nonmetro areas create a misleading image of farm expenses, by reducing the averages by 50 percent and 40 percent, respectively. Average operating expenses for business-oriented farms is over $116,000 in metro areas and over $84,000 in nonmetro areas. Corresponding figures for residential farms are $8,300 and $6,600 per farm.

The composition of operating expenses differs between metro and nonmetro farms and between residential and business-oriented farms because of differences in the kind of enterprises pursued (table B-5). Since metro farms produce more high-value greenhouse and nursery products than nonmetro farms, their expenditures for labor and plant-related items constitute a greater proportion of total expenses. Nonmetro farms expend larger proportions on livestock and machinery.

While residential farm expenses have minimal influence on the aggregate expense distribution in either metro or nonmetro areas, the distribution of expenses on residential farms is clearly different than that of business-oriented farms. In comparison to residential farms, business-oriented farms had larger shares for every expense category except imputed operator and family labor, interest, taxes, and land improvement expenses. These differences reflect the noncommercial character of residential farms and show that much of the expense on such farms relates to owning the farm, rather than operating it as a productive unit. Business-oriented farms expend larger percentages of total expenses for seeds and plants, agricultural chemicals, purchased feed, purchased livestock, and hired labor.

Assets, Debt, and Equity

The average value of assets on metro farms is 30 percent greater than on nonmetro farms (table B-6). Average asset values on business-oriented farms in metro areas are 39 percent larger than on business-oriented farm in nonmetro areas. This reflects higher land values near urban centers and the higher values for operator dwellings in metro areas. The average value of operator dwellings is $64,100 in metro areas versus $38,600 in nonmetro areas.

Business-oriented farms had average asset values 2 to 3 times those of residential farms despite the substantially larger values contributed by operator dwellings on metro residential farms. In metro areas, the value of operator dwellings constitutes roughly 25 percent of the asset value on residential

Table B-5—Farm operating expenses, by farm type, 1991

Expense item	Residential		Business-oriented		All	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
			Million dollars			
Total operating expenses	8,254	6,585	116,176	84,092	58,391	51,021
			Percent			
Crops	4	4	16	13	15	13
Seeds and plants	1	1	4	3	4	3
Agricultural chemicals	3	3	10	10	9	10
Containers & other plant exp.	0	0	2	0	2	0
Livestock	10	10	15	23	15	22
Purchased feed	6	6	9	11	9	10
Purchased livestock	3	3	5	11	5	11
Vet. services and supplies	1	1	1	1	1	1
Machinery	8	10	12	14	11	14
Equipment leasing	0	0	0	1	0	1
Fuel and oil	3	3	4	4	3	4
Repairs	3	3	4	5	4	5
Tools	1	2	2	2	2	2
Custom	1	2	2	2	2	2
Labor	47	51	36	28	37	29
Operator	44	49	19	21	21	23
Hired	2	2	15	6	14	6
Contract	1	0	2	1	2	0
Business	13	12	10	9	10	9
Utility and business	4	3	6	4	5	4
Insurance	2	3	2	3	2	3
Total tax	7	6	2	2	3	2
Interest	12	8	6	7	7	7
Land	6	5	5	6	5	6
Cash rent and AUM 1/	2	1	4	5	4	5
Land improvement	4	4	1	1	1	1
Total	100	100	100	100	100	100

1/ AUM = Animal unit month.

farms compared to roughly 9 percent on business-oriented farms.

Average debt is *slightly lower on metro farms* than on nonmetro farms, although these averages are misleading. When averages are calculated separately for residential and business-oriented farms, average debt is *always larger on metro farms* than on nonmetro farms (table B-6). Dramatic differences between residential and business-oriented farm debt (and the process of averaging) yield these anomalous relationships between metro and nonmetro debt. Business-oriented debt is 4 times larger than residential debt in metro areas and 7 times larger in nonmetro areas.

Debt-to-asset ratios for nonmetro farms are higher than for metro farms. The debt-to-asset ratios for metro and nonmetro farms are determined largely by the business-oriented farms. Business-oriented farms in nonmetro areas carry larger debt-to-asset ratios than business-oriented farms in metro areas (.15 versus .11). Debt-to-asset ratios on residential farms are lower and exhibit less difference between metro and nonmetro areas. Debt-asset ratios for business-oriented farms are 1.5 to 2.5 times larger than for residential farms.

Equity, or net worth, exhibits patterns similar to those described for debt and assets. Equity is larger on metro farms than on nonmetro farms, and equity on business-oriented farms is larger than equity on residential farms.

Intensity of Production and Investment

The value of agricultural products sold per operated acre on metro farms is more than twice that for nonmetro farms (table B-7). Part of the difference in productive intensity is explained by metro farm emphasis on crop production and nonmetro farm emphasis on livestock production, which uses large acreage of grazing land. Differences between residential and business-oriented farms are even more dramatic. The

Table B-6—Farm assets, debt, and equity, by farm type, 1991

Item	Residential		Business-oriented		All	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
	Dollars per farm					
Farm assets	253,376	158,192	692,588	496,951	457,420	352,411
Real estate	223,490	131,398	490,803	307,241	347,712	232,213
Machinery	12,311	11,605	75,032	72,320	41,449	46,415
All other	17,575	15,189	126,673	117,390	68,259	73,783
Farm debt	17,866	10,186	76,125	73,719	44,932	46,611
Farm equity	235,510	148,006	616,463	423,232	412,488	305,800
Dwellings	63,140	38,660	65,235	38,483	64,113	38,558

Table B-7—Intensity of production and investment, by farm type, 1991

Operator characteristic	Residential		Business-oriented		All	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
Per acre operated:			Dollars			
Value of products sold	28	16	193	79	171	73
Farm assets	2,844	943	1,039	432	1,280	483
Real estate	2,509	783	736	267	973	318
Machinery	138	69	113	63	116	64
Other	197	91	190	102	191	101
Farm debt	201	61	114	64	126	64
Equity	2,643	882	925	368	1,154	419
Dwellings	709	231	98	33	179	53
			Dollars			
Per acre owned:						
Real estate value	3,890	950	2,339	751	2,711	791
			Number			
Acres per farm:						
Owned	57	138	210	409	128	293
Rented 1/	37	42	469	769	238	459
Operated 1/	89	168	667	1,149	357	730

1/ Includes animal unit months.

value of agricultural products sold per acre on business-oriented farms is 5 to 7 times larger than for residential farms.

Assets per acre and debt per acre measure investment in the farm operation and the extent to which operators are leveraged. Metro farms have 2.7 times as much investment per acre as nonmetro farms, but only 2 times the debt per acre (table B-7). Much of the additional investment on metro farms is attributable to real estate because the value of capital assets per acre is only 2 times higher for metro farms. Residential farms own more assets per acre than business-oriented farms.

The per acre value of farm real estate owned by metro farmers is more than 3 times as high as owned nonmetro real estate (table B-8). Residential farms in metro areas have higher per acre values than any other classification, being more than 1.6 times as valuable as business-oriented farms in metro areas and 5 times as valuable as business-oriented farms in nonmetro areas. These differences in real estate values most likely reflect differences in the values of operator dwellings and locational differences relative to urban development rather than differences in land quality for agricultural production.

Metro farmers operate roughly one-half as many acres per farm as do nonmetro farmers, with both groups owning more than one-third of the land operated (table B-7). Residential farms, whether located in metro or nonmetro areas, are about one-seventh the size of business-oriented farms. Residential farms rent smaller percentages of the land they operate than

Table B-8—Spatial and economic importance, by farm types, 1991

Item	Residential		Business-oriented		All	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
			Number			
Number of farms	335,865	622,837	291,413	836,908	627,278	1,459,745
			Thousands			
Farmland acres:						
Operated	29,923	104,460	194,323	961,658	224,246	1,066,119
Owned	19,295	86,119	61,162	342,207	80,457	428,326
			Million dollars			
Value of sales	839	1,723	37,558	75,747	38,397	77,470
Net farm income	-713	0	6,346	14,124	5,633	14,132
Farm assets	85,100	98,528	201,829	415,902	286,930	514,430
Farm equity	79,099	92,184	179,645	354,206	258,745	446,390
			Percent			
Percent of total:						
Number of farms	16	30	14	40	30	70
Farmland acres--						
Operated	2	8	15	75	17	83
Owned	4	17	12	67	16	84
Value of sales	1	2	32	65	33	67
Net farm income	-4	0	32	72	28	72
Farm assets	11	12	25	52	36	64
Farm equity	11	13	26	50	37	63
Percent of metro/nonmetro totals:						
Number of farms	54	43	46	57	100	100
Farmland acres--						
Operated	13	10	87	90	100	100
Owned	24	20	76	80	100	100
Value of sales	2	2	98	98	100	100
Net farm income	-13	0	113	100	100	100
Farm assets	30	19	70	81	100	100
Farm equity	30	21	70	79	100	100

do business-oriented farms (42 percent in metro areas and 25 percent in nonmetro areas).

Relative Importance of Farm Types at the National Level

Farms in metropolitan areas are an increasingly important component of U.S. agriculture (table B-8). They make up 30 percent of all farms and control 36 percent of farm assets. Seventeen percent of farmland is located in metro areas, roughly proportional to the total land in metro areas. Again, residential farms blur the contributions of more productive, business-oriented farms.

Residential farms account for 46 percent of U.S. farms, but contribute only 2 percent to aggregate U.S. sales of agricultural products (table B-8). Within metro areas, residential farms account for 54 percent of farms, control 30 percent of farm sector assets and equity and 13 percent of the land operated. These residential farms have little viability as economic enterprises and are essentially a consumption activity that will become increasingly expensive for landowners as urban development continues.

Business-oriented farms account for 46 percent of metro farms, 57 percent of nonmetro farms, and 54 percent of U.S. farms. They farm the majority of metro farm acreage and have economic importance in even greater proportions than their size, controlling more than proportional shares of U.S. farm sales, assets, and returns. They control assets and equity twice their numbers and size and have 4 times larger farm sales. Business-oriented farms produce returns 6 to 10 times greater than their proportional numbers or acreage.

Summary

An increasing proportion of U.S. agriculture is influenced by urban development as the U.S. becomes increasingly metropolitan in character. Growth of metro areas affects agriculture by changing product and input markets, local government institutions, land use, property taxes, and characteristics of farm operators. Many of these changes have a dual-edged impact on agriculture, bringing pressures to adapt, while simultaneously offering opportunities and rewards for doing so. Adaptation itself is not uniform, with different forms of adaptation leading to different types of farms.

In general, this study shows that metro agriculture is distinctly different from nonmetro agriculture, due in large part to the increased presence of residential-type farms. Metro agriculture is characterized by a relatively larger group of residential farmers who are availing themselves of opportunities in both farm and nonfarm pursuits, and a smaller group of more business-oriented farmers who may or may not have accommodated their farming operations to an urban environment.

Recognition of the differences between metro and nonmetro farms and knowledge of the presence, prevalence, and role of large numbers of residential-type farms is important when interpreting county-level or other aggregate statistics. Such knowledge can assist agricultural researchers, extension agents, policymakers, and others who deal with agriculture near cities.

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List of Tables

Appendix tables

Appendix table 1—Farm income statements, 1990-94

Item	1990	1991	1992P	1993F	1994F
			Billion dollars		
Cash income statement					
1. Cash receipts	170.0	168.7	171.2	173	172 to 180
Crops 1/	80.1	81.9	84.8	83	85 to 89
Livestock	89.3	86.7	86.4	90	87 to 91
2. Direct Government payments	9.3	8.2	9.2	11	8 to 12
3. Farm-related income 2/	7.6	7.8	7.6	7	7 to 9
4. Gross cash income (1+2+3)	186.8	184.7	187.9	191	190 to 198
5. Cash expenses 3/	130.9	131.4	130.2	132	130 to 137
6. NET CASH INCOME (4-5)	55.9	53.3	57.7	59	55 to 62
Deflated (1987$) 4/	49.4	45.3	47.8	48	44 to 49
Farm income statement					
7. Gross cash income (1+2+3)	186.8	184.7	187.9	191	190 to 198
8. Nonmoney income 5/	6.2	5.9	6.1	6	6 to 7
9. Inventory adjustment	3.4	-.3	3.8	-3	2 to 6
10. Total gross income (7+8+9)	196.4	190.3	197.7	195	201 to 210
11. Total expenses	149.9	150.3	149.1	151	150 to 159
12. NET FARM INCOME (10-11)	46.5	40.0	48.6	44	47 to 54
Deflated (1987$) 4/	41.1	34.0	40.2	35	37 to 43

P = preliminary; F = forecast. Totals may not add due to rounding.
1/ Includes CCC loans. 2/ Income from machine hire and customwork, forest product sales, custom feeding service fees, and other farm sources. 3/ Excludes expenses for onfarm operator dwellings and noncash items such as capital consumption and perquisites to hired labor. 4/ Deflated by the GDP implicit price deflator.
5/ Includes the value of home consumption of farm products plus imputed rental value of operator dwellings.

Appendix table 2—Average income to farm operator households, 1990-94 1/

Item	1990	1991	1992P	1993F	1994F
			Dollars per operator household		
Farm operator household income	39,007	36,025	40,068	39,220 to 40,515	40,690 to 41,993
Farm income 2/	5,742 3/	4,397	4,337	4,266 to 5,561	4,233 to 5,536
From self-employment	4,973	2,283	2,829	n/a	n/a
From other	768	2,114	2,010	n/a	n/a
Off-farm income	33,265	31,638	35,731	34,954	36,457
From wages, salaries, and non-farm businesses	24,778	23,551	27,022	n/a	n/a
From interest, dividends, and transfer payments, etc.	8,487	8,087	8,709	n/a	n/a

P = preliminary; F = forecast. n/a = not available. Totals may not add due to rounding.
1/ Data for 1990 are expanded to represent the farm operator households surveyed in the Farm Costs and Returns Survey. Data for 1991-92 are expanded to represent the number of U.S. farms and ranches. 2/ Includes self-employment income, wages that operators pay themselves and family members to work on the farm, income from renting farmland, and net income from another farm business. 3/ If the additional 350,000 small farms included in the 1991 analysis were included in the 1990 analysis, the 1990 farm income to the household would be approximately $4,600.

Appendix table 3—Relationship of net cash to net farm income, 1990-94

Item	1990	1991	1992P	1993F	1994F
			Billion dollars		
Gross cash income	186.8	184.7	187.9	191	190 to 198
Minus cash expenses	130.9	131.4	130.2	132	130 to 137
Equals net cash income	55.7	53.3	57.7	59	55 to 62
Plus nonmoney income 1/	6.2	5.9	6.1	6	6 to 7
Plus value of inventory change	3.4	-.3	3.8	-3	2 to 6
Minus noncash expenses	16.5	16.7	16.6	17	16 to 18
Labor perquisites	.5	.6	.6	0	0 to 1
Net capital consumption	14.6	14.8	14.7	15	13 to 17
Capital consumption exc. dwellings	16.0	16.1	16.0	16	15 to 17
- Landlord capital consumption	1.4	1.3	1.3	1	0 to 2
Minus operator dwelling expenses	3.9	3.9	3.8	4	3 to 5
Capital consumption	1.7	1.6	1.7	2	1 to 3
Interest	.6	.7	.6	1	0 to 2
Property taxes	.6	.6	.6	1	0 to 2
Repair and maintenance	.6	.7	.6	1	0 to 2
Insurance	.2	.2	.2	*	1 to 1
Equals net farm income	46.5	40.0	48.6	44	47 to 54

P = preliminary; F = forecast.
1/ The value of home consumption and gross rental value of all dwellings.

Appendix table 4—Cash receipts, 1990-94

Item	1990	1991	1992P	1993F	1994F
			Billion dollars		
Crop receipts 1/	80.1	81.9	84.8	83	85 to 89
Food grains	7.5	7.4	8.9	8	8 to 10
Wheat	6.4	6.3	7.6	7	6 to 8
Rice	1.1	1.1	1.2	1	1 to 2
Feed grains and hay	18.7	19.5	20.1	19	19 to 23
Corn	13.3	14.4	14.8	14	15 to 17
Sorghum, barley, and oats	2.0	2.1	2.4	2	1 to 3
Oil crops	12.3	12.7	13.0	13	12 to 14
Soybeans	10.8	11.0	11.3	11	11 to 13
Peanuts	1.3	1.4	1.3	1	1 to 2
Cotton lint and seed	5.5	5.1	5.2	5	4 to 6
Tobacco	2.7	2.9	3.0	3	1 to 3
Fruits and nuts	9.4	9.9	10.2	10	9 to 12
Vegetables	11.5	11.5	11.4	12	11 to 13
Greenhouse & nursery	8.5	8.8	9.0	9	9 to 10
Livestock receipts 2/	89.8	86.7	86.4	90	87 to 91
Red meats	51.9	51.1	48.4	51	47 to 55
Cattle and calves	39.9	39.6	37.9	40	37 to 42
Hogs	11.6	11.0	10.1	11	11 to 12
Sheep and lambs	0.4	0.4	0.5	*	0 to 1
Poultry and eggs	15.2	15.1	15.4	17	14 to 18
Broilers	8.4	8.4	9.2	10	9 to 11
Turkeys	2.4	2.3	2.4	3	2 to 3
Eggs	4.0	3.9	3.4	3	2 to 4
Dairy products	20.1	18.0	19.8	19	17 to 20
TOTAL RECEIPTS	170.0	168.7	171.2	173	172 to 180

P = preliminary; F = forecast. * = less than $500 million. Totals may not add due to rounding.
1/ Includes sugar, seed, and other miscellaneous crops. 2/ Includes miscellaneous livestock and livestock products.

Appendix table 5—Farm production expenses, 1990-94

Item	1990	1991	1992P	1993F	1994F
			Billion dollars		
Farm-origin	39.7	38.7	38.5	40	38 to 42
Feed	20.4	19.3	19.8	20	19 to 23
Feeder livestock	14.8	14.3	13.8	15	12 to 16
Seed	4.5	5.1	4.9	5	4 to 6
Manufactured inputs	22.0	23.2	22.7	23	22 to 26
Fertilizer	8.2	8.7	8.3	8	7 to 11
Fuels and oils	5.8	5.6	5.3	5	4 to 7
Electricity	2.6	2.6	2.6	3	2 to 4
Pesticides	5.4	6.3	6.5	7	6 to 8
Interest	13.3	12.1	11.4	11	9 to 13
Nonreal estate	6.5	6.1	5.8	5	4 to 7
Real estate	6.7	6.0	5.6	5	5 to 7
Other operating expenses	42.4	43.9	43.2	44	42 to 47
Repair and maintenance	8.6	8.6	8.5	9	8 to 10
Labor	14.0	13.9	14.1	14	12 to 16
Machine hire and customwork	3.0	3.1	3.3	3	3 to 5
Animal health	1.5	1.4	1.7	2	1 to 3
Marketing, storage & transportation	4.2	4.7	4.5	4	4 to 6
Miscellaneous	11.2	12.1	11.1	11	10 to 14
Other overhead expenses	32.5	32.4	33.2	33	33 to 36
Capital consumption	17.7	17.6	17.8	18	16 to 20
Property taxes	5.7	5.6	5.8	6	5 to 7
Net rent to non operator landlords	9.1	9.1	9.6	9	8 to 10
Total production expenses	149.9	150.3	149.1	151	150 to 159
Noncash expenses	16.5	16.7	16.6	17	16 to 18
Labor perquisites	.5	.6	.6	0	0 to 1
Net capital consumption	14.6	14.8	14.7	15	13 to 17
Capital consumption exc. dwellings	16.0	16.1	16.0	16	15 to 17
- Landlord capital consumption	1.4	1.3	1.3	1	0 to 2
Operator dwelling expenses	3.9	3.9	3.8	4	3 to 5
Capital consumption	1.7	1.6	1.7	2	1 to 3
Interest	.6	.7	.6	1	0 to 2
Property taxes	.6	.6	.6	1	0 to 2
Repair and maintenance	.6	.7	.6	1	0 to 2
Insurance	.2	.2	.2	*	1 to 1
Cash expenses 1/	130.9	131.4	130.2	132	130 to 137

P = preliminary; F = forecast. * = less than $500 million.
1/ Total production expenses minus noncash and onfarm operator dwelling expenses.

Appendix table 6—Farm income distribution by selected enterprise type, 1992-94 1/

Item	Crops					Livestock			
	Total	Cash grain 2/	Tobacco	Cotton	Fruit/nut/ vegetable	Total	Red meat	Poultry	Dairy
					Thousands				
Number of farms:									
1992	855	396	110	22	117	1,239	919	45	149
1993	839	389	108	22	115	1,217	902	44	146
1994	828	384	106	21	113	1,200	890	44	144
					Billion dollars				
Income:									
Cash receipts—									
Crops									
1992	78.3	33.1	3.1	4.8	20.0	6.6	3.9	.2	.9
1993	76.9	31.6	2.9	4.5	20.3	6.3	3.7	.2	.8
1994	80	34	2	4	21	7	4	0	1
Livestock									
1992	4.5	3.1	.2	.1	.1	81.9	27.4	15.4	21.1
1993	4.7	3.3	.2	.1	.2	84.9	28.8	16.6	20.9
1994	5	3	0	0	0	84	29	16	20
Direct Government payments—									
1992	6.6	5.0	.1	.6	.1	2.6	1.9	.0	.3
1993	7.8	5.9	.1	.7	.1	3.0	2.2	.0	.4
1994	7	6	0	1	0	3	2	0	0
Gross cash income— 3/									
1992	92.9	42.9	3.5	5.8	20.6	95.0	35.5	15.6	23.2
1993	92.8	42.4	3.3	5.6	20.9	98.2	37.0	16.8	23.0
1994	96	45	3	6	21	98	38	17	22
Cash expenses—									
1992	59.6	25.3	2.9	3.6	12.1	70.6	32.0	8.8	16.9
1993	56.2	25.2	2.4	3.3	10.2	75.4	38.0	9.5	20.2
1994	58	26	2	3	10	77	39	10	21
Net cash income—									
Current dollars 4/									
1992	33.3	17.6	.6	2.1	8.5	24.4	3.5	6.8	6.3
1993	36.6	17.3	.9	2.3	10.7	22.9	1.0	7.4	2.8
1994	38	19	0	2	11	21	1	7	1
Deflated ($1987)									
1992	27.6	14.5	.5	1.8	7.0	20.2	2.9	5.6	5.2
1993	29.4	13.9	.7	1.9	8.6	18.4	-.8	5.9	2.2
1994	30	15	*	2	9	17	-1	5	1
Balance sheet: 5/									
Farm assets—									
Real estate									
1992	293.8	112.9	18.6	7.4	86.3	339.3	239.0	13.1	52.9
1993	299.3	115.0	18.9	7.5	90.0	345.7	243.4	13.3	53.8
1994	298	115	19	7	90	345	243	13	54
Nonreal estate									
1992	102.4	53.5	5.1	5.4	14.1	125.7	78.2	3.7	29.5
1993	103.3	54.0	5.1	5.5	14.2	126.7	78.9	3.7	29.7
1994	101	53	5	5	14	123	77	4	29
Farm liabilities—									
1992	68.5	35.9	2.3	3.3	13.2	69.8	36.3	3.8	20.1
1993	69.4	36.3	2.3	3.3	13.4	70.6	36.7	3.8	20.3
1994	70	37	2	3	14	72	37	4	21
					Percent				
Debt-to-asset ratio—									
1992	17.3	21.6	9.8	25.4	12.9	15.0	11.4	22.6	24.4
1993	17.2	21.5	9.8	25.4	12.8	15.0	11.4	22.5	24.3
1994	17.6	22.0	10.0	26.1	13.1	15.3	11.7	23.1	25.0

1992 estimates are preliminary; 1993-94 estimates are forecast. *=less than $500 million. Numbers are rounded.
1/ Farm types are defined as those with 50 percent or more of the value of production accounted for by a specific commodity or commodity group. 2/ Includes farms earning at least half their receipts from sales of wheat, corn, soybeans, rice, sorghum, barley, oats, or a mix of cash grains. 3/ Cash receipts plus government payments plus farm-related income. 4/ Gross cash income minus cash expenses. 5/ Excludes farm households.

Appendix table 7—Farm income and returns, farm business balance sheet, and rates of return, 1990-94

Item	1990	1991	1992	1993F	1994F
			Billion dollars		
Income and total returns:					
1. Gross farm income 1/	191	186	193	189	198 to 202
2. Wages and perquisites to hired labor	12	12	12	12	10 to 12
3. Other operating expenses, excluding interest	96	98	97	99	98 to 102
4. Capital consumption	16	16	16	16	15 to 17
5. Net income from assets and operators' labor and management (1-2-3-4) 2/	67	60	68	62	72 to 74
6. Income imputed to operators' labor and management	30	32	32	33	32 to 36
7. Residual income to farm assets (5-6)	37	28	36	29	38 to 40
8. Real capital gains on assets	-21	-33	-8	-7	-3 to -7
9. Total return to assets (7+8)	17	-6	28	22	32 to 36
10. Interest paid	13	11	11	11	10 to 12
11. Real capital gains on debt	7	6	4	4	3 to 5
12. Total return to equity (9-10+11)	11	-11	22	15	13 to 15
13. Real capital gains on equity (8+11)	-14	-28	-3	-4	-3 to -5
14. Residual income to farm equity (12-13)	25	16	25	19	18 to 20
Balance sheet:					
15. Assets	848	842	861	878	895 to 905
16. Debt	137	139	139	143	142 to 148
17. Equity (15-16)	711	703	722	735	750 to 760
			Percent		
Rates of return and interest rates:					
18. Rate of return on assets (ROA) (7/15)	4.4	3.3	4.2	3.3	3 to 5
19. Real capital gain on assets (8/15)	-2.5	-4.0	-0.9	-0.8	-2 to 0
20. Total real return on assets (18+19)	2.0	-0.7	3.3	2.5	3 to 4
21. Average interest rate paid on debt (10/16)	9.2	8.3	7.8	7.4	7 to 8
22. Real capital gains on debt (11/16)	5.0	4.1	3.2	2.6	2 to 3
23. Real cost of debt (21-22)	4.2	4.2	4.6	4.8	4 to 5
24. Rate of return on equity (ROE) ((7-10)/17)	3.5	2.3	3.5	2.5	2 to 4
25. Real capital gain on equity ((8+11)/17)	-3.9	-5.6	-1.7	-1.5	-3 to -1
26. Total real return on equity (24+25)	-0.4	-3.2	1.8	1.0	2 to 3
27. Net return on assets (NROA) (18-21)	-4.8	-5.0	-3.6	-4.1	-3 to -4
28. Real net return on assets (RNROA) (20-23) 3/	-2.3	-4.8	-1.3	-2.3	-1 to -2

F = forecast. Numbers may not add due to rounding.
1/ Excludes operator dwellings. 2/ Numbers in parentheses show components required to calculate a given item.
3/ When total real rate of return on assets exceeds total real cost of debt, debt financing is advantageous.

Appendix table 8—Farm business balance sheet, 1990-94

Item	1990	1991	1992	1993	1994F
			Billion dollars		
Farm assets	848.3	842.2	861.5	878	895 to 905
Real estate	628.2	623.2	633.1	648	660 to 670
Livestock and poultry	70.9	68.1	71.3	71	72 to 76
Machinery and motor vehicles	85.4	85.8	85.6	86	85 to 89
Crops stored 1/	22.8	22.0	24.1	25	24 to 28
Purchased inputs	2.8	2.6	3.9	3	2 to 4
Financial assets	38.3	40.6	43.4	45	45 to 49
Farm debt	137.4	138.9	139.3	143	142 to 148
Real estate 2/	74.1	74.6	75.6	77	76 to 80
Nonreal estate	63.2	64.3	63.6	66	65 to 69
Farm equity	710.9	703.4	722.2	735	750 to 760
			Ratio		
Selected ratios:					
Debt-to-asset	16.2	16.5	16.2	16.3	15 to 17
Debt-to-equity	19.3	19.7	19.3	19.5	18 to 20
Debt-to-net cash income	245.8	260.4	245.3	240.3	240 to 250

F = forecast.
1/ Non-CCC crops held on farm plus value above loan rate for crops held under CCC. 2/ Includes CCC storage and drying facility loans.

Appendix table 9—Selected Farm financial ratios, 1990-94

Ratios	1990	1991	1992	1993F	1994F
			Ratio		
Liquidity ratios:					
Farm business debt service coverage 1/	2.38	2.33	2.48	2.6	2.4 to 2.6
Debt servicing 2/	0.15	0.15	0.15	0.1	.1 to .2
Times interest earned ratio 3/	4.50	4.31	4.27	3.9	3.2 to 3.4
			Percent		
Solvency ratios:					
Debt/asset 4/	16.2	16.5	16.2	16.3	15 to 17
Debt/equity 5/	19.3	19.7	19.3	19.5	18 to 20
Profitability ratios:					
Return on equity 6/	3.5	2.3	3.5	2.5	2 to 4
Return on assets 7/	4.5	3.3	4.2	3.3	3 to 5
Net farm to gross cash farm income 8/	24.9	21.7	25.8	25.2	26 to 27
Financial efficiency ratios:					
Gross ratio 9/	70.1	71.1	68.5	68.2	66 to 68
Interest to gross cash farm income 10/	6.8	6.2	5.8	6.1	7 to 8
Asset turnover 11/	22.3	21.9	22.1	19.9	19 to 21
Net cash farm income to debt ratio 12/	43.0	37.3	42.8	38.4	40 to 44
Financial leverage index 13/	0.79	0.70	0.84	0.76	.7 to .8

F = forecast.
1/ Assesses the ability of farm businesses to repay both principal and interest. 2/ Indicates the proportion of gross cash farm income needed to service debt. 3/ Shows the farm sector's ability to service debt out of net income. 4/ Shows the proportion of all assets that are financed with debt. 5/ Measures the relative proportion of funds provided by creditors (debt) and owners (equity). 6/ Measures the ability of farm sector management to realize an adequate return on the capital invested by the owner(s). 7/ Measures how efficiently managers use farm assets. 8/ The profit margin indicates profits earned per dollar of gross income. 9/ Gives the portion of gross cash farm income absorbed by production expenses (claims on farm businesses). 10/ Gives the proportion of gross cash farm income committed to interest payments. 11/ Measures the gross farm income generated per dollar of farm business assets. 12/ Indicates the burden placed on net cash farm income to retire outstanding debt. 13/ Indicates whether the use of financial leverage is advantageous.

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